

N00174.AR.001949  
NSWC INDIAN HEAD  
5090.3a

VALIDATED DATA PACKAGE, 76326, NSWC INDIAN HEAD MD  
6/2/2015  
APPL LABS





908 North Temperance Ave. ▽ Clovis, CA 93611 ▽ Phone 559-275-2175 ▽ Fax 559-275-4422

Certification Number: CA1312  
NELAP Certification number: CA00046  
DoD-ELAP Certificate number: 74807

## Summary Report

June 2, 2015

Tetra Tech  
5700 Lake Wright Drive, Suite 309  
Norfolk, Virginia 23502

Attn: Ed Corack

Title: Report of Data: Case 76326

Project: CTO JU11 112G02622 NSF Indian Head, MD

Contract #: Prime contract # for DoD: Navy CLEAN. N62467-08-D-1001  
Subcontract # 1045497, Work Release # 08-JU11

Dear Mr. Corack:

Five water samples were received May 5, 2015, in good condition. Written results for the requested analysis are being provided on this June 2, 2015.

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

If you have any questions or require further information, please contact your APPL Project Manager, Cynthia Clark, cclark@applinc.com, at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Sharon Dehmlow, Laboratory Director  
APPL, Inc.

SD/ab  
Enclosure  
cc: File

Number of pages in this report: 12



## Sample receipt information

ARF: 76326

Project: CTO JU11 112G02622 NSF Indian Head, MD

### Sample Receipt Information:

The sample group was received on May 5, 2015, at 3.5°C. The samples were assigned Analytical Request Form (ARF) number 76326. The sample numbers and requested analysis were compared to the chain of custody. No exception was encountered.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
S67-GWC3-050415	AZ15933	WATER	05/04/15	05/05/15
S67-GWD3-050415	AZ15934	WATER	05/04/15	05/05/15
S67-GWE3-050415	AZ15935	WATER	05/04/15	05/05/15
S67-GWE2-050415	AZ15936	WATER	05/04/15	05/05/15
S67-GWF2-050415	AZ15937	WATER	05/04/15	05/05/15

The samples and blank were screened for J-value responses between the detection limit (DL) and limit of quantitation (LOQ).

Laboratory control limits generated in house do not meet the control limits listed in DoD QSM 4.2 for all analytes. Laboratory control limits generated for this project meet all control limits listed in the DoD QSM 4.2 except where noted. A copy of our in house generated control limits is available upon request. In addition, a copy of our LOQ control limits, established using 7 data points, are also available upon request.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request.

Measurement uncertainty can be reported upon request.



# **EPA Method 6850**

## **Perchlorate by LC-Mass Spec**

### **Sample Preparation and Analysis Information:**

The water samples were prepared according to the method. The samples were analyzed according to EPA Method 6850 using an Agilent 6460 Triple Quad LC/MS. The samples were prepared and analyzed within acceptable hold time.

Manual integrations were performed in accordance to APPL's SOP. Perchlorate was manually integrated in calibration standards, the ICS and samples S67-GWC3-050415, S67-GWD3-050415 and S67-GWE2-050415. Chromatograms of before and after manual integration are enclosed.

### **Quality Control/Assurance**

#### **Calibrations:**

Calibrations were performed according to the method. All calibration acceptance criteria were met. The second source met acceptance criteria.

#### **Blanks:**

Perchlorate was not detected at or above one-half the limit of quantitation (LOQ) in the method blank.

#### **Spikes:**

A Laboratory Control Spike (LCS) was prepared using DI water. The LCS recovery met acceptance criteria.

An Interference Check Sample (I.C.S.) was prepared using a mixed anions solution. The ICS recovered above the upper control limit of 130% at 133%.

No sample was designated by the client for MS/MSD analysis.

#### **Internal Standards:**

The area counts of the sample Internal Standards were compared to the average IS area counts of the initial calibration. All I.S. were within the 50%D acceptance criteria.

### **Summary:**

All data were acceptable. No other analytical exception is noted.



## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

Attn: Ed Corack  
Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWC3-050415**

Sample Collection Date: 05/04/15

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

ARF: 76326

**APPL ID: AZ15933**

QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTMFL2  
Run #: T505\_012.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Dilution Factor: 1  
Initials: MP

Printed: 06/02/15 1:28:17 PM  
APPL-F1-SC-NoMC-REG MDLs



## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

Attn: Ed Corack

Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWD3-050415**

Sample Collection Date: 05/04/15

ARF: 76326

**APPL ID: AZ15934**

QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLMFL2  
Run #: T505\_013.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Dilution Factor: 1  
Initials: MP

Printed: 06/02/15 1:28:17 PM  
APPL-F1-SC-NoMC-REG MDLs



## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

Attn: Ed Corack

Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWE3-050415**

Sample Collection Date: 05/04/15

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

ARF: 76326

**APPL ID: AZ15935**

QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	980	60.00	40.000	20.000	ug/L	05/05/15	05/07/15

Quant Method: QTLMFL2  
Run #: T506\_063.d  
Instrument: AGIL\_6460  
Sequence: TQ050615  
Dilution Factor: 100  
Initials: MP

Printed: 06/02/15 1:28:17 PM  
APPL-F1-SC-NoMC-REG MDLs



## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

Attn: Ed Corack

Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWE2-050415**

Sample Collection Date: 05/04/15

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

ARF: 76326

**APPL ID: AZ15936**

QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLMFL2  
Run #: T505\_015.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Dilution Factor: 1  
Initials: MP

Printed: 06/02/15 1:28:17 PM  
APPL-F1-SC-NoMC-REG MDLs



## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

Attn: Ed Corack

Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWF2-050415**

Sample Collection Date: 05/04/15

ARF: 76326

**APPL ID: AZ15937**

QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	3.1	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLMFL2  
Run #: T505\_016.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Dilution Factor: 1  
Initials: MP

Printed: 06/02/15 1:28:17 PM  
APPL-F1-SC-NoMC-REG MDLs



## Method Blank

### Perchlorate

Blank Name/QCG: **150505W-15933 - 196642**  
Batch ID: #6850-150505A

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLMFL2  
Run #: T505\_011.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Initials: MP

GC SC-Blank-REG MDLs  
Printed: 06/02/15 1:27:53 PM



# Laboratory Control Spike Recovery

## Perchlorate

APPL ID: **150505W-15933 LCS - 196642**

Batch ID: #6850-150505A

APPL Inc.

908 North Temperance Avenue

Clovis, CA 93611

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
PERCHLORATE	0.600	0.654	109	80-120

Comments: \_\_\_\_\_

<u>Primary</u>	<u>SPK</u>
Quant Method :	QTLMFL2
Extraction Date :	05/05/15
Analysis Date :	05/05/15
Instrument :	AGIL_6460
Run :	T505_009.D
Initials :	MP

Printed: 06/02/15 1:27:55 PM

APPL Standard LCS



# **EPA 6850**

Form 4

## **Blank Summary**

Lab Name: APPL, Inc.

SDG No: 76326

Case No: 76326

Date Analyzed: 05/05/15

Matrix: WATER

Instrument: AGIL\_6460

Blank ID: 150505A-BLK

Time Analyzed: 2121

APPL ID.	Client Sample No.	File ID.	Date Analyzed
150505A-LCS	Lab Control Spike	T505_009.D	05/05/15 2121
150505A-BLK	Blank	T505_011.D	05/05/15 2121
AZ15933	S67-GWC3-050415	T505_012.D	05/05/15 2217
AZ15934	S67-GWD3-050415	T505_013.D	05/05/15 2236
AZ15936	S67-GWE2-050415	T505_015.D	05/05/15 2313
AZ15937	S67-GWF2-050415	T505_016.D	05/05/15 2331
AZ15935	S67-GWE3-050415	T506_063.d	05/07/15 1233

Comments: Batch: #6850-150505A



# CHEMTECH

## CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092  
(908) 789-8900 Fax (908) 789-8922  
www.chemtech.net

3.5

76326

CHEMTECH PROJECT NO.

QUOTE NO.

COC Number 088446

### CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech Inc., Attn: Ed Corack

ADDRESS: 661 Anderson Dr, Foster Plaza V

CITY: Pittsburgh STATE: PA ZIP: 15205

ATTENTION: Ed Corack

PHONE: 757-466-4908

FAX:

### CLIENT PROJECT INFORMATION

PROJECT NAME: Site 67 Phase 2 RI

PROJECT NO: 112602622 LOCATION: NSF-IH

PROJECT MANAGER: Ed Corack

e-mail: ed.corack@tetratech.com

PHONE: 757-466-4908

FAX:

### CLIENT BILLING INFORMATION

BILL TO:

PO#:

ADDRESS:

CITY:

STATE:

ZIP:

ATTENTION:

PHONE:

### ANALYSIS

### DATA TURNAROUND INFORMATION

FAX: \_\_\_\_\_ DAYS \*

HARD COPY: \_\_\_\_\_ DAYS \*

EDD: \_\_\_\_\_ DAYS \*

PREAPPROVED TAT: ☒ YES ☐ NO 24 hour

STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

### DATA DELIVERABLE INFORMATION

- ☐ RESULTS ONLY ☐ USEPA CLP  
☐ RESULTS + QC ☐ New York State ASP "B"  
☐ New Jersey REDUCED ☐ New York State ASP "A"  
☐ New Jersey CLP ☒ Other See SOW  
☐ EDD FORMAT

Perchlorate

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE		SAMPLE COLLECTION		# OF BOTTLES	PRESERVATIVES									COMMENTS	
			COMP	GRAB	DATE	TIME		NA	1	2	3	4	5	6	7	8	9	— Specify Preservatives A-HCl B-HNO <sub>3</sub> C-H <sub>2</sub> SO <sub>4</sub> D-NaOH E-ICE F-Other
1.	567-GWC3-050415	GW	X	5/4/15	1205	1	X											All samples * filtered * Quick TAT 24 hr
2.	567-GWD3-050415	GW	X	5/4/15	1325	1	X											
3.	567-GWE3-050415	GW	X	5/4/15	1430	1	X											
4.	567-GWE2-050415	GW	X	5/4/15	1500	1	X											
5.	567-GWF2-050415	GW	X	5/4/15	1540	1	X											
6.	JBB 5-4-15																	
7.																		
8.																		
9.																		
10.																		

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:

DATE/TIME:

RECEIVED BY:

1. JBB 5-4-15 1800

1. FedEx

RELINQUISHED BY:

DATE/TIME:

RECEIVED BY:

2.

2.

RELINQUISHED BY:

DATE/TIME:

RECEIVED FOR LAB BY:

3. 5-5-15 9:44

3. Brian Brown

Conditions of bottles or coolers at receipt:

☐ Compliant

☐ Non Compliant

Cooler Temp. \_\_\_\_\_

MeOH extraction requires an additional 4 oz jar for percent solid.

Comments:

Ice in Cooler?: \_\_\_\_\_

Page 1 of 1

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT  
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete:  
☐ YES ☐ NO





908 North Temperance Ave. ▽ Clovis, CA 93611 ▽ Phone 559-275-2175 ▽ Fax 559-275-4422

Certification Number: CA1312  
NELAP Certification number: CA00046  
DoD-ELAP Certificate number: 74807

## Data Validatable Report

June 2, 2015

Tetra Tech  
5700 Lake Wright Drive, Suite 309  
Norfolk, Virginia 23502

Attn: Ed Corack

Title: Report of Data: Case 76326

Project: CTO JU11 112G02622 NSF Indian Head, MD

Contract #: Prime contract # for DoD: Navy CLEAN. N62467-08-D-1001  
Subcontract # 1045497, Work Release # 08-JU11

Dear Mr. Corack:

Five water samples were received May 5, 2015, in good condition. Written results for the requested analysis are being provided on this June 2, 2015.

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

If you have any questions or require further information, please contact your APPL Project Manager, Cynthia Clark, cclark@applinc.com, at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Sharon Dehmlow, Laboratory Director  
APPL, Inc.

SD/ab  
Enclosure  
cc: File

Number of pages in this report: 143



Data Validation Package  
for  
CTO JU11 112G02622 NSF Indian Head  
ARF 76326

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## **SAMPLE RECEIPT INFORMATION**



## Sample receipt information

ARF: 76326

Project: CTO JU11 112G02622 NSF Indian Head, MD

### Sample Receipt Information:

The sample group was received on May 5, 2015, at 3.5°C. The samples were assigned Analytical Request Form (ARF) number 76326. The sample numbers and requested analysis were compared to the chain of custody. No exception was encountered.

**Sample Table**

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
S67-GWC3-050415	AZ15933	WATER	05/04/15	05/05/15
S67-GWD3-050415	AZ15934	WATER	05/04/15	05/05/15
S67-GWE3-050415	AZ15935	WATER	05/04/15	05/05/15
S67-GWE2-050415	AZ15936	WATER	05/04/15	05/05/15
S67-GWF2-050415	AZ15937	WATER	05/04/15	05/05/15

The samples and blank were screened for J-value responses between the detection limit (DL) and limit of quantitation (LOQ).

Laboratory control limits generated in house do not meet the control limits listed in DoD QSM 4.2 for all analytes. Laboratory control limits generated for this project meet all control limits listed in the DoD QSM 4.2 except where noted. A copy of our in house generated control limits is available upon request. In addition, a copy of our LOQ control limits, established using 7 data points, are also available upon request.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request.

Measurement uncertainty can be reported upon request.



## **CASE NARRATIVE**



# **EPA Method 6850**

## **Perchlorate by LC-Mass Spec**

### **Sample Preparation and Analysis Information:**

The water samples were prepared according to the method. The samples were analyzed according to EPA Method 6850 using an Agilent 6460 Triple Quad LC/MS. The samples were prepared and analyzed within acceptable hold time.

Manual integrations were performed in accordance to APPL's SOP. Perchlorate was manually integrated in calibration standards, the ICS and samples S67-GWC3-050415, S67-GWD3-050415 and S67-GWE2-050415. Chromatograms of before and after manual integration are enclosed.

### **Quality Control/Assurance**

#### **Calibrations:**

Calibrations were performed according to the method. All calibration acceptance criteria were met. The second source met acceptance criteria.

#### **Blanks:**

Perchlorate was not detected at or above one-half the limit of quantitation (LOQ) in the method blank.

#### **Spikes:**

A Laboratory Control Spike (LCS) was prepared using DI water. The LCS recovery met acceptance criteria.

An Interference Check Sample (I.C.S.) was prepared using a mixed anions solution. The ICS recovered above the upper control limit of 130% at 133%.

No sample was designated by the client for MS/MSD analysis.

#### **Internal Standards:**

The area counts of the sample Internal Standards were compared to the average IS area counts of the initial calibration. All I.S. were within the 50%D acceptance criteria.

### **Summary:**

All data were acceptable. No other analytical exception is noted.



# APPL Inc.

## Abbreviations and Flags

FLAG	DESCRIPTION
#	Recovery or RPD outside control limits
*	Recovery or RPD outside control limits
B	Analyte detected in associated method blank
C1	Reason for correction: wrote incorrect response
C2	Reason for correction: calculated incorrectly
C3	Reason for correction: needs to be rechecked
C4	Reason for correction: data not usable
DO	Diluted out
E	Exceeds linear range
F	Estimated value
G1	Includes a wide range of hydrocarbons which does not match our gasoline standard
G10	Includes a match to hydrocarbon profiles within the range of mineral spirits
G11	Includes a match to hydrocarbon profiles within the range of JP-4
G12	Pattern does not match the gasoline standard; the carbon range for this sample is consistent with JP8
G13	Closely resembles the hydrocarbon profile of aviation gasoline
G14	Analyte concentration may be biased due to carry over
G2	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G3	Includes higher boiling hydrocarbons
G4	Includes dominant peak(s) not indicative of petroleum hydrocarbons
G5	Is mainly dominant peak(s) not indicative of petroleum hydrocarbons
G6	Contains recognizable contaminant peak(s) which has been removed from quantitation
G7	Is mainly a match to hydrocarbons within the range of gasoline
G8	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G9	Includes hydrocarbons within the range of kerosene
J	Estimated value
M	Matrix effect
MI1	Manual integration: integration does not follow baseline
MI2	Manual integration: non-target peak interference
MI3	Manual integration: to split a peak that was integrated as one peak by the computer.
MI4	Manual integration: to integrate a split peak
MI5	Manual integration: the whole peak or part of the peak was not integrated
MI6	Manual integration: computer integrated wrong peak
MI7	Manual integration: other – (See case narrative)
MDL	Method detection limit
ND	Not detected
NT	Non-target
Q	Acceptance criteria not met
T1 I	Includes wide range of hydrocarbons not indicative of diesel
T1 M	Is mainly wide range of hydrocarbons not necessarily indicative of diesel
T2 I	Includes lower boiling hydrocarbons, i.e. mineral spirits, kerosene, stoddard solvent, white gas
T2 M	Is mainly lower boiling hydrocarbons, i.e. mineral spirits, kerosene, stoddard solvent, white gas
T3 I	Includes higher boiling hydrocarbons, i.e. asphaltene, waster oil, motor oil, or weathered diesel fuel
T3 M	Is mainly higher boiling hydrocarbons, i.e. asphaltene, waster oil, motor oil, or weathered diesel fuel
T4 I	Includes dominant peak(s) not indicative of hydrocarbons
T4 M	Is mainly dominant peak(s) not indicative of hydrocarbons
T5	Contains recognizable contaminant peak(s) which has been removed from quantitation
T6	Is mainly a match to hydrocarbons within range of diesel fuel
T7	Closely resembles the boiling point hydrocarbon profile consistent with diesel fuel
T8	Includes a match to hydrocarbon profiles within range of diesel and kerosene fuel
T9 I	Includes non-diesel hydrocarbons within boiling point range of diesel fuel
T9 M	Is mainly non-diesel hydrocarbons within boiling point range of diesel fuel
U	Not detected
Y	Percent difference between primary and confirmation column > 40%



**CHAIN OF CUSTODY,  
ARF, CRF, AND  
CLIENT COMMUNICATION**



## APPL - Analysis Request Form

76326

Client: **Tetra Tech**  
Address: **5700 Lake Wright Dr, Ste 309**  
**Norfolk, VA 23502**  
Attn: **Ed Corack**  
Phone: **757-466-4908** Fax: **757-461-4148**  
Job: **CTO JU11 112G02622 NSF Indian Head**  
PO #: **MSA #1045497 Release #08-CTO JU11**  
Chain of Custody (Y/N): **Y** # **088446**  
RAD Screen (Y/N): **Y** pH (Y/N): **N**  
Turn Around Type: **24 HOURS**

Received by: **YL**  
Date Received: **05/05/15** Time: **09:44**  
Delivered by: **FED EX**  
Shuttle Custody Seals (Y/N): **Y** Time Zone: **-4**  
Chest Temp(s): **3.5°C**  
Color: **D-Yellow**  
Samples Chilled until Placed in Refrig/Freezer: **Y**  
Project Manager: **Cynthia Clark**  
QC Report Type: **DVP4/LEDD/MD**  
Due Date: **05/06/15**

Comments:

login to ed.corack@ & tobrena.sedlmyer@tetrattech.com. 21 calendar day TAT for final report  
1HC DVP4 and summary report & 2 BOOKMARKED CDs of report and  
Summary report: sample & QC results with surrogate & blank summaries to Amy Thomson (Pittsburgh)  
Include original COC with report. NOTHING to Ed in VA office  
EDD: TTEC LEDD to tobrena.sedlmyer@tetrattech.com  
Guidance: DOD QSM v4.2: DOD Forms, LOD Database

May 2015: include rush shipping and sap prep fees on first invoice; may need some Invoices before work

Sample Distribution:

**Extractions: 5- HPL6850**  
**LCMS: 5-\$6850**






Charges:Invoice To:

**ACCOUNTS PAYABLE**

**661 Andersen Dr, Foster Plaza 7**

**Pittsburgh, PA 15220-2745**

**Invoice in triplicate per SOW**

Client ID	APPL ID	Sampled	Analyses Requested
1. S67-GWC3-050415	AZ15933W 	05/04/15 12:05	\$6850
2. S67-GWD3-050415	AZ15934W 	05/04/15 13:25	\$6850
3. S67-GWE3-050415	AZ15935W 	05/04/15 14:30	\$6850
4. S67-GWE2-050415	AZ15936W 	05/04/15 15:00	\$6850
5. S67-GWF2-050415	AZ15937W 	05/04/15 15:40	\$6850

Note: All times, excluding sample collection times, are Pacific Time Zone unless noted otherwise. Collection times are in: -4 UTC



# APPL Sample Receipt Form

ARF# 76326

Sample	Container Type	Count	pH
AZ15933	3 PL 250mL	1	NA
AZ15934	3 PL 250mL	1	NA
AZ15935	3 PL 250mL	1	NA
AZ15936	3 PL 250mL	1	NA
AZ15937	3 PL 250mL	1	NA

Sample Container Type Count pH



**CHEMTECH**

## CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092  
(908) 789-8900 Fax (908) 789-8922  
www.chemtech.net

3.5

76326

CHEMTECH PROJECT NO.

QUOTE NO.

COC Number 088446

## CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech Inc., Attn: Ed Corack  
ADDRESS: 661 Anderson Dr, Foster Plaza V  
CITY: Pittsburgh STATE: PA ZIP: 15205  
ATTENTION: Ed Corack  
PHONE: 757-466-4908 FAX:

## CLIENT PROJECT INFORMATION

PROJECT NAME: Site 67 Phase 2 KI  
PROJECT NO.: 112602622 LOCATION: NSF-IH  
PROJECT MANAGER: Ed Corack  
e-mail: ed.corack@tetratech.com  
PHONE: 757-466-4908 FAX:

## CLIENT BILLING INFORMATION

BILL TO: See PO#:   
ADDRESS: Contract  
CITY: STATE: ZIP:   
ATTENTION: PHONE:

## DATA TURNAROUND INFORMATION

FAX: \_\_\_\_\_ DAYS:   
HARD COPY: \_\_\_\_\_ DAYS:   
EOD: \_\_\_\_\_ DAYS:   
PREAPPROVED TAT: ☒ YES ☐ NO 24 hour  
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

## DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP  
☐ RESULTS + QC ☐ New York State ASP "B"  
☐ New Jersey REDUCED ☐ New York State ASP "A"  
☐ New Jersey CLP ☒ Other See SOW  
☐ EDD FORMAT

ANALYSIS								
1	2	3	4	5	6	7	8	9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE		SAMPLE COLLECTION		# OF BOTTLES	PRESERVATIVES									COMMENTS — Specify Preservatives A-HCl B-HNO <sub>3</sub> C-H <sub>2</sub> SO <sub>4</sub> D-NaOH E-ICE F-Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:	Conditions of bottles or coolers at receipt: <input type="checkbox"/> Compliant <input type="checkbox"/> Non Compliant	Cooler Temp.:
1. [Signature]	5-4-15 1200	1. FedEx	MeOH extraction requires an additional 4 oz jar for percent solid.	
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	Comments:	Ice in Cooler?:
2.		2.		
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:	Page 1 of 1	SHIPPED VIA: CLIENT: <input type="checkbox"/> HAND DELIVERED <input checked="" type="checkbox"/> OVERNIGHT
3.	5-5-15 9:44	3. [Signature]		CHEMTECH: <input type="checkbox"/> PICKED UP <input type="checkbox"/> OVERNIGHT
				Shipment Complete: <input type="checkbox"/> YES <input type="checkbox"/> NO



## COOLER RECEIPT FORM

ARF: 76326

- 1) Project: CTO JU11 112G02622 NSF Indian Head Date Received: 05/05/15
- 2) Coolers: Number of Coolers: 1
- 3) YES Were custody seals present and intact?  
How many? 2 Name/Date on seal? SEE BELOW
- 4) YES Was there a shipping slip? Carrier name: FED EX
- 5) Type of packing in cooler: ☐ bubble wrap ☐ popcorn ☐ foam ☒ plastic bags  
☒ wet ice ☐ dry ice ☐ no ice ☐ other
- 6) YES Were cooler temperatures acceptable?
- 7) Serial number of certified NIST thermometer use J5297
- 8) Cooler temp(s): In °C  
1: 3.5 2: 3 3: 3 4: 3 5: 3 6: 3  
7: 3 8: 3 9: 3 10: 3 11: 3 12: 3

## Chain of custody:

- 9) YES Was a chain of custody received?
- 10) YES Were the custody papers complete/signed in the appropriate places?

## Sample Labels:

- 11) YES Were all sample labels complete (sample ID, date/time of sampling, etc.)?
- 12) YES Did all container labels agree with custody papers?

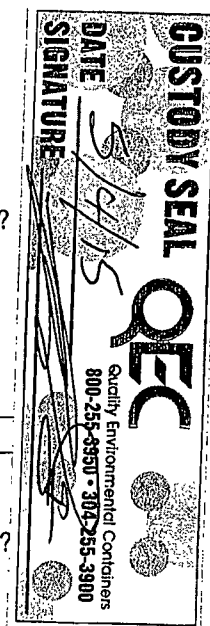
## Sample Containers:

- 13) YES Were all containers sealed in separate bags?
- 14) YES Did all containers arrive in good condition: (unbroken, no leakage, no cracked/broken lids)?
- 15) YES Were correct containers and preservatives used for the tests indicated?
- 16) YES Was a sufficient amount of sample sent for tests indicated?
- 17) NA Were bubbles present in volatile samples?  
If yes, the following were received with air bubbles:  
Larger than a pea: \_\_\_\_\_  
Smaller than a pea: \_\_\_\_\_

## Preservation Hold time:

- 18) Yes Was a sufficient amount of holding time remaining to analyze the samples?
- 19) NA Was the pH taken of all non-VOA preserved samples and written on the sample container?
- 20) NA Was the pH of acid preserved non-VOA samples < 2?
- 21) NA Was the pH of sodium hydroxide preserved samples for Cyanide > 12 and Sulfide > 9?
- 22) NO Were unpreserved VOA Vials received?
- 23) NA Are unpreserved VOA vials noted in the ADD TEST FIELD on the ARF?  
pH strip lot number: \_\_\_\_\_  
Lab notified if pH was not adequate: \_\_\_\_\_

Notes/Deficiencies:



Personnel receiving samples: BB Second reviewer: YL

Personnel labeling samples: \_\_\_\_\_

Project manager notified: \_\_\_\_\_ Date/Time of notification: \_\_\_\_\_

Name of client notified: \_\_\_\_\_ Date/Time of notification: \_\_\_\_\_



**EPA METHOD 6850**  
**Perchlorate**  
**LC/MS**



**EPA METHOD 6850**  
**Perchlorate**  
**LC/MS**

**QC Summary**



# Method Blank

## Perchlorate

Blank Name/QCG: **150505W-15933 - 196642**  
Batch ID: #6850-150505A

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLMFL2  
Run #: T505\_011.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Initials: MP

GC SC-Blank-REG MDLs  
Printed: 05/06/15 11:59:55 AM



# Laboratory Control Spike Recovery

## Perchlorate

APPL ID: **150505W-15933 LCS - 196642**

Batch ID: #6850-150505A

APPL Inc.

908 North Temperance Avenue

Clovis, CA 93611

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
PERCHLORATE	0.600	0.654	109	80-120

Comments: \_\_\_\_\_

<u>Primary</u>	<u>SPK</u>
Quant Method :	QTLMFL2
Extraction Date :	05/05/15
Analysis Date :	05/05/15
Instrument :	AGIL_6460
Run :	T505_009.D
Initials :	MP

Printed: 05/06/15 11:59:58 AM

APPL Standard LCS



## Interference Check Sample

### Perchlorate EPA 6850 Water

APPL ID: 150505W-15933 ICS-196642

Batch ID: #6850-150505A

APPL Inc.

908 N. Temperance Ave.

Clovis, CA 93711

Compound Name	Spike Level ug/L	Spk Result ug/L	SPK% Recovery	Recovery Limits
Perchlorate	0.600	0.800	133%	70-130

APPL  
Batch

Comments:

APPL  
Batch

Quant Method:	QTLMFL2
Extraction Date:	05/05/15
Analysis Date:	05/05/15
Instrument:	AGIL_6460
Run:	T505_010.D
Initials:	MP



## INTERNAL STANDARD AREA AND RT SUMMARY

**Lab Name: APPL Inc.**

SDG No.

**Lab File ID (Standard):** T312\_003-\_008.d

**Instrument ID: Agilent 6460 Triple Quad LC/MS**

[illegible]

AREA UPPER LIMIT = +50% of internal standard average

AREA LOWER LIMIT = -50% of internal standard average

# Column used to flag values outside QC limits

\* Values outside of QC limits



# **EPA 6850**

Form 4

## **Blank Summary**

Lab Name: APPL, Inc.

SDG No: 76326

Case No: 76326

Date Analyzed: 05/05/15

Matrix: WATER

Instrument: AGIL\_6460

Blank ID: 150505A-BLK

Time Analyzed: 2121

APPL ID.	Client Sample No.	File ID.	Date Analyzed
150505A-LCS	Lab Control Spike	T505_009.D	05/05/15 2121
150505A-BLK	Blank	T505_011.D	05/05/15 2121
AZ15933	S67-GWC3-050415	T505_012.D	05/05/15 2217
AZ15934	S67-GWD3-050415	T505_013.D	05/05/15 2236
AZ15936	S67-GWE2-050415	T505_015.D	05/05/15 2313
AZ15937	S67-GWF2-050415	T505_016.D	05/05/15 2331
AZ15935	S67-GWE3-050415	T506_063.d	05/07/15 1233

Comments: Batch: #6850-150505A



## INTERNAL STANDARD AREA AND RT SUMMARY

**Lab Name: APPL Inc.**

SDG No.

**76326**

**Lab File ID (Standard):** T505\_007.d

Instrument ID: Agilent 6460 Triple Quad LC/MS

[illegible]

AREA UPPER LIMIT = +50% of internal standard average

AREA LOWER LIMIT = -50% of internal standard average

# Column used to flag values outside QC limits

\* Values outside of QC limits



### INTERNAL STANDARD AREA AND RT SUMMARY

**Lab Name: APPL Inc.**

SDG No.

76326

**Lab File ID (Standard):** T06\_003.d

Instrument ID: Agilent 6460 Triple Quad LC/MS

[illegible]

AREA UPPER LIMIT = +50% of internal standard average

AREA LOWER LIMIT = -50% of internal standard average

# Column used to flag values outside QC limits

\* Values outside of QC limits



# Perchlorate LC/MS Ion Ratio Report

acceptable ratio is between 2.3 and 3.8 (DoD Perchlorate Handbook, 2006)

Data File Path : D:\masshunter\data\150312

Instrument Name : TQ (Agilent 6460 Triple Quad LC/MS)

Method File : 6460\_ESI\_PER\_N\_NEWER\_K'\_COLUMN.m

Operator : BA

Date Acquired: 03/12/15 17:52 Vial Number: NA  
Sample Name: PERCHLORATE 0.0002 ug/ml 11/11/14 Data File ID: T312\_003.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.789	446712	3.1
2)	Perchlorate_85	13.704	144754	

Date Acquired: 03/12/15 18:11 Vial Number: NA  
Sample Name: PERCHLORATE 0.0004 ug/ml 11/11/14 Data File ID: T312\_004.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.8	1023403	3.0
2)	Perchlorate_85	13.827	337305	

Date Acquired: 03/12/15 18:29 Vial Number: NA  
Sample Name: PERCHLORATE 0.001 ug/ml 11/11/14 Data File ID: T312\_005.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.82	2483393	3.2
2)	Perchlorate_85	13.827	781617	

Date Acquired: 03/12/15 18:48 Vial Number: NA  
Sample Name: PERCHLORATE 0.002 ug/ml 11/11/14 Data File ID: T312\_006.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.83	6351752	3.3
2)	Perchlorate_85	13.817	1920912	

Date Acquired: 03/12/15 19:07 Vial Number: NA  
Sample Name: PERCHLORATE 0.005 ug/ml 11/11/14 Data File ID: T312\_007.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.861	14499255	3.4
2)	Perchlorate_85	13.878	4209044	



Date Acquired: 03/12/15 19:25 Vial Number: NA  
Sample Name: PERCHLORATE 0.010 ug/ml 08/27/14 Data File ID: T312\_008.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.881	34223790	3.4
2)	Perchlorate_85	13.878	9985270	

Date Acquired: 03/12/15 20:02 Vial Number: NA  
Sample Name: PER\_SS 0.0004 ug/ml 11/11/14 Data File ID: T312\_010.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.942	1472839	3.3
2)	Perchlorate_85	13.959	440675	

Date Acquired: 03/12/15 20:21 Vial Number: NA  
Sample Name: PER\_SS 0.002 ug/ml 11/11/14 Data File ID: T312\_011.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.014	7468678	3.4
2)	Perchlorate_85	14	2222387	



Date Acquired: 05/05/15 20:25 Vial Number: NA  
Sample Name: PER\_CCV 0.0004 ug/ml 04/20/15 Data File ID: T505\_006.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.545	449547	3.0
2)	Perchlorate_85	13.511	148733	

Date Acquired: 05/05/15 20:44 Vial Number: NA  
Sample Name: PER\_CCV 0.002 ug/ml 04/20/15 Data File ID: T505\_007.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.749	2296209	3.2
2)	Perchlorate_85	13.745	722317	

Date Acquired: 05/05/15 21:02 Vial Number: NA  
Sample Name: PER\_IS 0.005 ug/ml 04/20/15 Data File ID: T505\_008.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.728	27977	2.1
2)	Perchlorate_85	13.674	13032	

Date Acquired: 05/05/15 21:21 Vial Number: NA  
Sample Name: 150505WA\_LCS-1 1052.6 DF 05/05/15 Data File ID: T505\_009.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.861	565453	3.1
2)	Perchlorate_85	13.857	183072	



Date Acquired: 05/05/15 21:40 Vial Number: NA  
Sample Name: 150505W\_ICSA 1052.6 DF 05/05/15 Data File ID: T505\_010.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	12.801	536896	2.8
2)	Perchlorate_85	12.879	192171	

Date Acquired: 05/05/15 21:58 Vial Number: NA  
Sample Name: 150505WBLKA 1052.6 DF 05/05/15 Data File ID: T505\_011.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.606	1401	0.2
2)	Perchlorate_85	13.409	6528	

Date Acquired: 05/05/15 22:17 Vial Number: NA  
Sample Name: AZ15933\_W01 1052.6 DF 05/05/15 Data File ID: T505\_012.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.29	54280	2.0
2)	Perchlorate_85	13.103	27306	

Date Acquired: 05/05/15 22:36 Vial Number: NA  
Sample Name: AZ15934\_W01 1052.6 DF 05/05/15 Data File ID: T505\_013.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	12.934	75479	2.3
2)	Perchlorate_85	12.818	33255	



Date Acquired: 05/05/15 22:54 Vial Number: NA  
Sample Name: AZ15935\_W01 1052.6 DF 05/05/15 Data File ID: T505\_014.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	11.925	445070629	2.7
2)	Perchlorate_85	11.972	163088597	

Date Acquired: 05/05/15 23:13 Vial Number: NA  
Sample Name: AZ15936\_W01 1052.6 DF 05/05/15 Data File ID: T505\_015.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.066	142455	2.9
2)	Perchlorate_85	13.083	48596	

Date Acquired: 05/05/15 23:31 Vial Number: NA  
Sample Name: AZ15937\_W01 1052.6 DF 05/05/15 Data File ID: T505\_016.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	12.281	1905503	3.2
2)	Perchlorate_85	12.319	601537	

Date Acquired: 05/05/15 23:50 Vial Number: NA  
Sample Name: PER\_IS 0.005 ug/ml 04/20/15 Data File ID: T505\_017.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.881	39912	2.6
2)	Perchlorate_85	13.98	15069	



Date Acquired: 05/06/15 0:09 Vial Number: NA  
Sample Name: PER\_CCV 0.0004 ug/ml 04/20/15 Data File ID: T505\_018.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.963	409802	2.8
2)	Perchlorate_85	13.98	146155	

Date Acquired: 05/06/15 0:27 Vial Number: NA  
Sample Name: PER\_CCV 0.002 ug/ml 04/20/15 Data File ID: T505\_019.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	14.177	2076381	3.2
2)	Perchlorate_85	14.183	639618	

Date Acquired: 05/06/15 0:46 Vial Number: NA  
Sample Name: PER\_IS 0.005 ug/ml 04/20/15 Data File ID: T505\_020.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	14.166	36976	2.2
2)	Perchlorate_85	14.245	16834	

Date Acquired: 05/06/15 1:05 Vial Number: NA  
Sample Name: 150505SA\_LCS-1 10219.7 DF 05/05/15 Data File ID: T505\_021.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	14.289	494445	3.1
2)	Perchlorate_85	14.316	161037	



## Perchlorate LC/MS Ion Ratio Report

acceptable ratio is between 2.3 and 3.8 (DoD Perchlorate Handbook, 2006)

Data File Path : D:\masshunter\data\150506  
Instrument Name : TQ (Agilent 6460 Triple Quad LC/MS)  
Method File : 6460\_ESI\_PER\_N\_NEWER\_K'\_COLUMN.m  
Operator : BA

Date Acquired: 05/06/15 16:11 Vial Number: NA  
Sample Name: PER\_IS 0.005 ug/ml 04/20/15 Data File ID: T506\_001.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.177	13808	1.4
2)	Perchlorate_85	14.071	9639	

Date Acquired: 05/06/15 16:29 Vial Number: NA  
Sample Name: PER\_CCV 0.0004 ug/ml 04/20/15 Data File ID: T506\_002.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.187	384853	3.1
2)	Perchlorate_85	14.143	124870	

Date Acquired: 05/06/15 16:48 Vial Number: NA  
Sample Name: PER\_CCV 0.002 ug/ml 04/20/15 Data File ID: T506\_003.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.156	2006264	3.2
2)	Perchlorate_85	14.163	627706	

Date Acquired: 05/06/15 17:06 Vial Number: NA  
Sample Name: PER\_IS 0.005 ug/ml 04/20/15 Data File ID: T506\_004.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.105	25112	8.8
2)	Perchlorate_85	14.143	2841	

Date Acquired: 05/06/15 18:07 Vial Number: NA  
Sample Name: 150506WA\_LCS-1 1052.6 DF 05/06/15 Data File ID: T506\_005.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	14.003	462792	3.1
2)	Perchlorate_85	13.959	148512	



Date Acquired: 05/07/15 9:43

Vial Number: NA

Sample Name: AZ15998\_W01 1052631.6 DF 05/06/15\_5/6

Data File ID: T506\_054.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.912	193398	2.7
2)	Perchlorate_85	13.878	71718	

Date Acquired: 05/07/15 10:03

Vial Number: NA

Sample Name: AZ15998\_W01 105263.2 DF 05/06/15\_5/6

Data File ID: T506\_055.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.83	1427673	3.1
2)	Perchlorate_85	13.817	454936	

Date Acquired: 05/07/15 10:23

Vial Number: NA

Sample Name: PER\_IS 0.005 ug/ml 04/20/15

Data File ID: T506\_056.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.81	31948	17.0
2)	Perchlorate_85	14.234	1879	

Date Acquired: 05/07/15 10:41

Vial Number: NA

Sample Name: PER\_CCV 0.0004 ug/ml 04/20/15

Data File ID: T506\_057.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.738	459856	2.9
2)	Perchlorate_85	13.725	160646	



Date Acquired: 05/07/15 11:00

Vial Number: NA

Sample Name: PER\_CCV 0.002 ug/ml 04/20/15

Data File ID: T506\_058.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.891	2447643	3.4
2)	Perchlorate_85	13.888	725175	

Date Acquired: 05/07/15 11:19

Vial Number: NA

Sample Name: PER\_IS 0.005 ug/ml 04/20/15

Data File ID: T506\_059.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	14.156	2712	3.2
2)	Perchlorate_85	14.051	839	

Date Acquired: 05/07/15 11:37

Vial Number: NA

Sample Name: AZ15935\_W01 1052631.6 DF 05/05/15\_5/6

Data File ID: T506\_060.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.942	9609	22.8
2)	Perchlorate_85	14.336	422	

Date Acquired: 05/07/15 11:56

Vial Number: NA

Sample Name: AZ15935\_W01 1052631.6 DF 05/05/15\_5/6

Data File ID: T506\_061.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	14.095	6169	1.4
2)	Perchlorate_85	14.204	4476	



Date Acquired: 05/07/15 12:15

Vial Number: NA

Sample Name: AZ15935\_W01 1052631.6 DF 05/05/15\_5/6

Data File ID: T506\_062.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	14.075	3360	2.9
2)	Perchlorate_85	14.081	1148	

Date Acquired: 05/07/15 12:33

Vial Number: NA

Sample Name: AZ15935\_W01 105263.2 DF 05/05/15\_5/6

Data File ID: T506\_063.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.555	9789316	3.4
2)	Perchlorate_85	13.562	2871792	

Date Acquired: 05/07/15 12:59

Vial Number: NA

Sample Name: AZ15935\_W01 105263.2 DF 05/05/15\_5/6

Data File ID: T506\_064.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.463	9716597	3.4
2)	Perchlorate_85	13.47	2821372	

Date Acquired: 05/07/15 13:18

Vial Number: NA

Sample Name: AZ15935\_W01 105263.2 DF 05/05/15\_5/6

Data File ID: T506\_065.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.402	8198297	3.4
2)	Perchlorate_85	13.399	2410969	



Date Acquired: 05/07/15 13:36 Vial Number: NA  
Sample Name: AZ15999\_W01 105263.2 DF 05/05/15\_5/6 Data File ID: T506\_066.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.392	75123	2.9
2)	Perchlorate_85	13.44	26007	

Date Acquired: 05/07/15 13:55 Vial Number: NA  
Sample Name: AZ15999\_W01 10526.3 DF 05/05/15\_5/6 Data File ID: T506\_067.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.341	94869	2.5
2)	Perchlorate_85	13.327	37330	

Date Acquired: 05/07/15 14:14 Vial Number: NA  
Sample Name: AZ15999\_W01 1052.6 DF 05/05/15 Data File ID: T506\_068.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	12.475	677947	2.7
2)	Perchlorate_85	12.482	247744	

Date Acquired: 05/07/15 14:32 Vial Number: NA  
Sample Name: PER\_IS 0.005 ug/ml 04/20/15 Data File ID: T506\_069.d

#	NAME	Ret Time	Target Response	Ratio
1)	Perchlorate_83	13.463	36450	16.7
2)	Perchlorate_85	14.051	2181	



Date Acquired: 05/07/15 14:51

Vial Number: NA

Sample Name: PER\_CCV 0.0004 ug/ml 04/20/15

Data File ID: T506\_070.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.474	477613	3.2
2)	Perchlorate_85	13.48	150850	

Date Acquired: 05/07/15 15:15

Vial Number: NA

Sample Name: PER\_CCV 0.002 ug/ml 04/20/15

Data File ID: T506\_071.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.688	2161686	3.3
2)	Perchlorate_85	13.674	657922	

Date Acquired: 05/07/15 15:34

Vial Number: NA

Sample Name: PER\_IS 0.005 ug/ml 04/20/15

Data File ID: T506\_072.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.749	30316	10.6
2)	Perchlorate_85	14.234	2866	

Date Acquired: 05/07/15 15:56

Vial Number: NA

Sample Name: SYRCHK\_250\_ul\_#1 1 DF 05/07/15

Data File ID: T506\_073.d

#	NAME	Ret Time	Target Response	Ratio
---	------	----------	-----------------	-------

1)	Perchlorate_83	13.81	41577	23.6
2)	Perchlorate_85	15.172	1761	



**EPA METHOD 6850**  
**Perchlorate**  
**LC/MS**

**Sample Data**



## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

Attn: Ed Corack

Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWC3-050415**

Sample Collection Date: 05/04/15

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

ARF: 76326

**APPL ID: AZ15933**

QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLML2  
Run #: T505\_012.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Dilution Factor: 1  
Initials: MP

Printed: 05/06/15 11:59:56 AM  
APPL-F1-SC-NoMC-REG MDLs



Data File ID: T505\_012.d

Date Injected : 05/05/15

Time Injected : 22:17

Sample ID : AZ15933\_W01 1052.6 DF 05/05/15

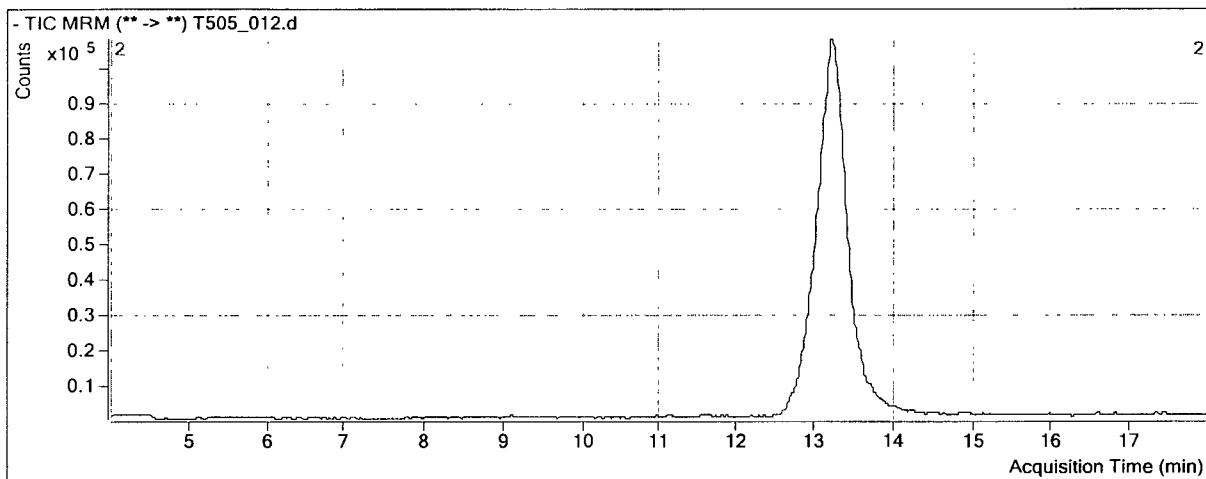
Client ID : S67-GWC3-050415

Retention Time		Area Count Response	Compound ID Product Ion			
13.232		2961308	PER_IS_89			
13.29	*	54280	Perchlorate_83	$(54280 * 0.0050) / (1.27 * 2961308.00) *$	1052.60 =	0.075945 ppb
13.103	*	27306	Perchlorate_85	$(27306 * 0.0050) / (0.39 * 2961308.00) *$	1052.60 =	0.123925 ppb
* MANUAL INTEGRAION						



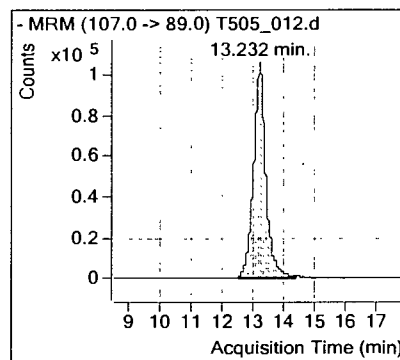
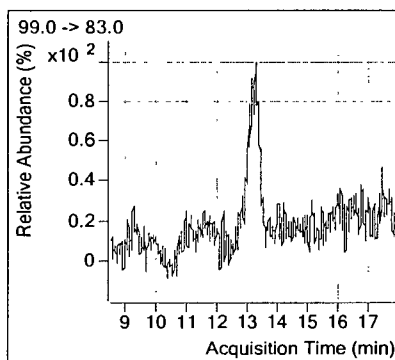
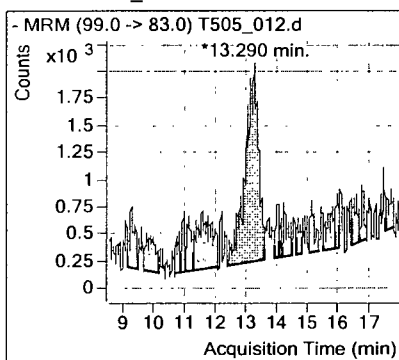
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150505\QuantResults\150505\_A1\_MI.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T505\_012.d **Sample Name** AZ15933\_W01 1052.6 DF 05/05/15  
**Sample Type** Sample **Acq Date** 05/05/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K'\_COLUMN.m **Acq Time** 22:17  
**ClientID** S67-GWC3-050415 **Inj Vol** 20

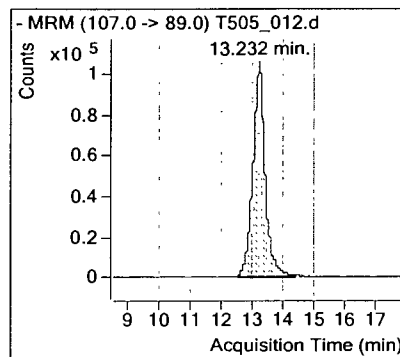
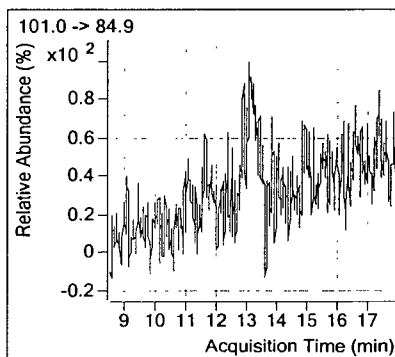
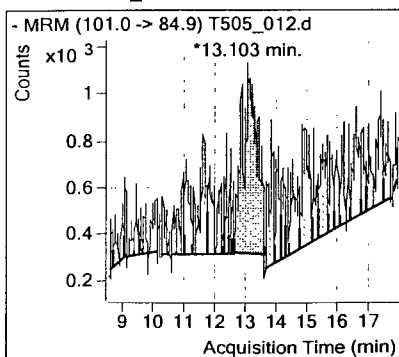


Compound	ISTD		RT	Resp	ISTD Resp	
Perchlorate_100	PER_IS_108	*	13.290	54280	2961308	* MANUAL INT
Perchlorate_102	PER_IS_108	*	13.103	27306	2961308	* MANUAL INT

## Perchlorate\_100

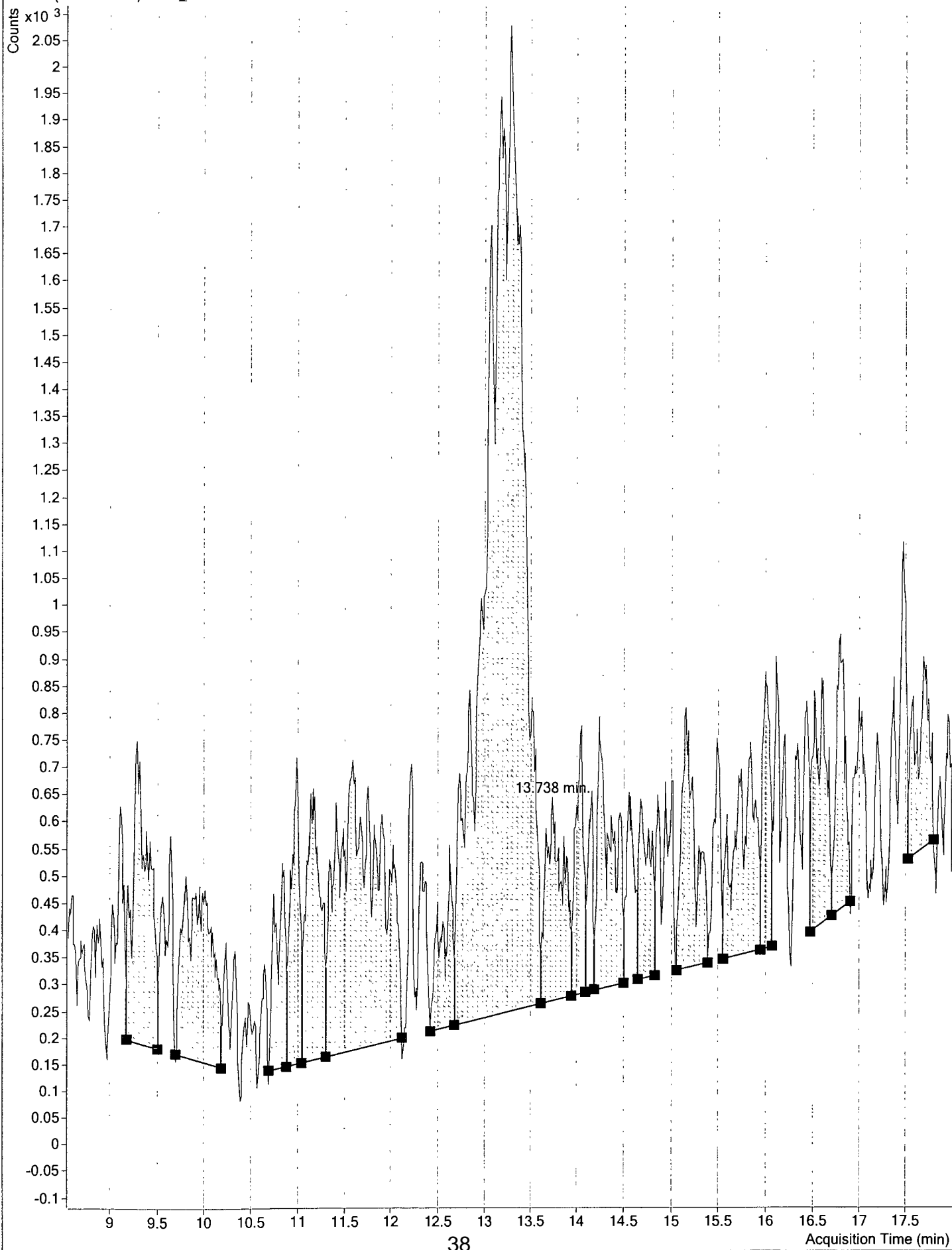


## Perchlorate\_102



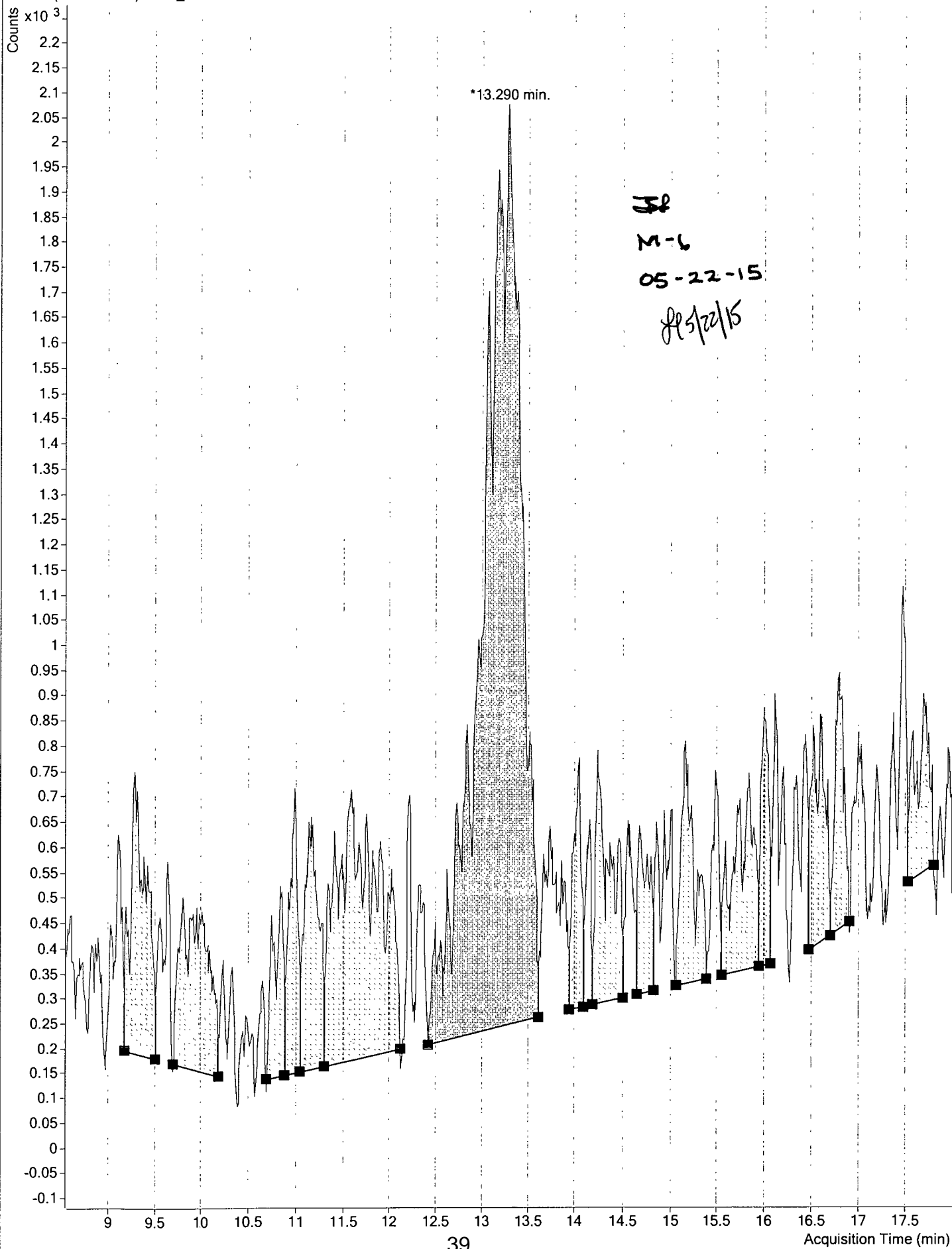


- MRM (99.0 -> 83.0) T505\_012.d



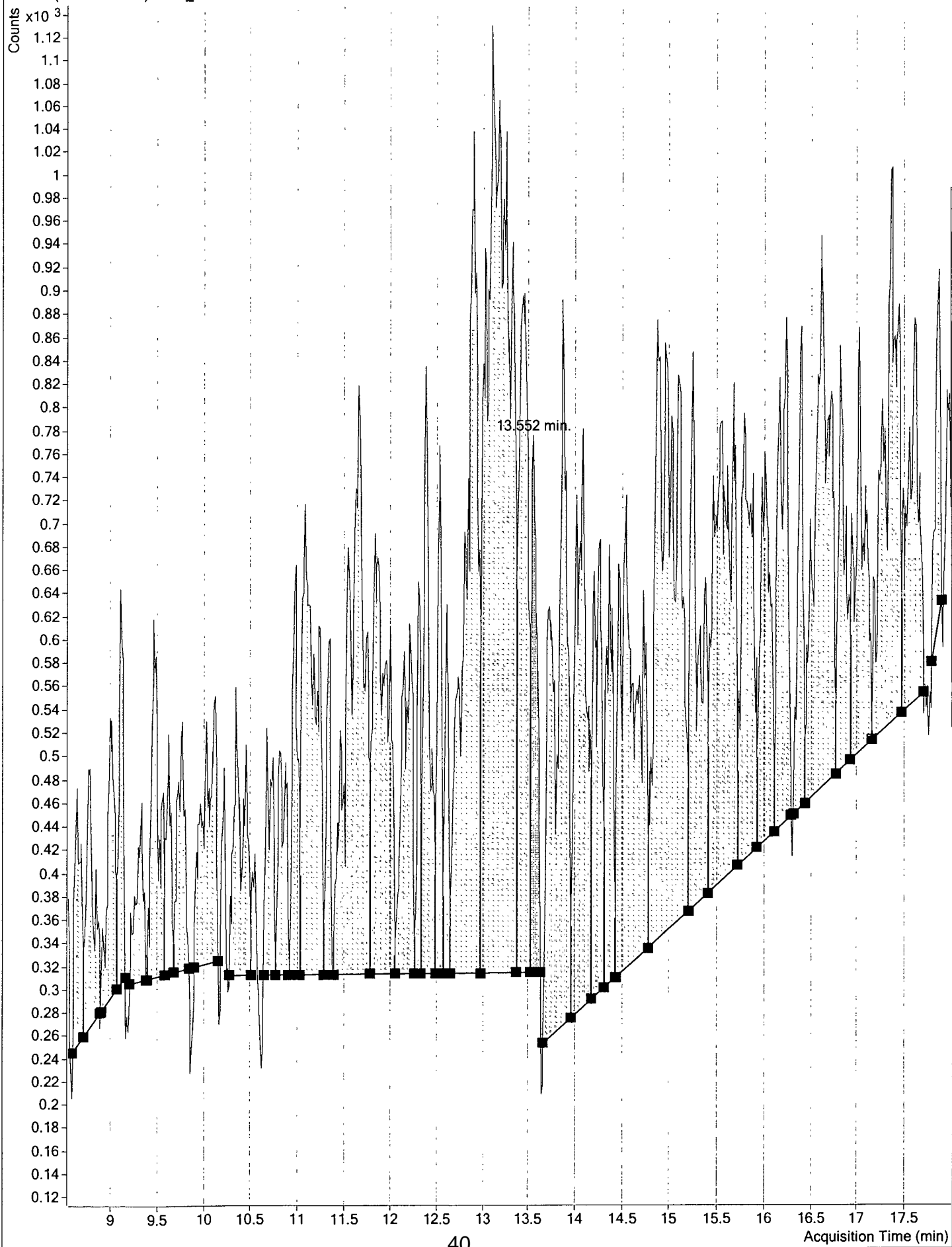


- MRM (99.0 -> 83.0) T505\_012.d



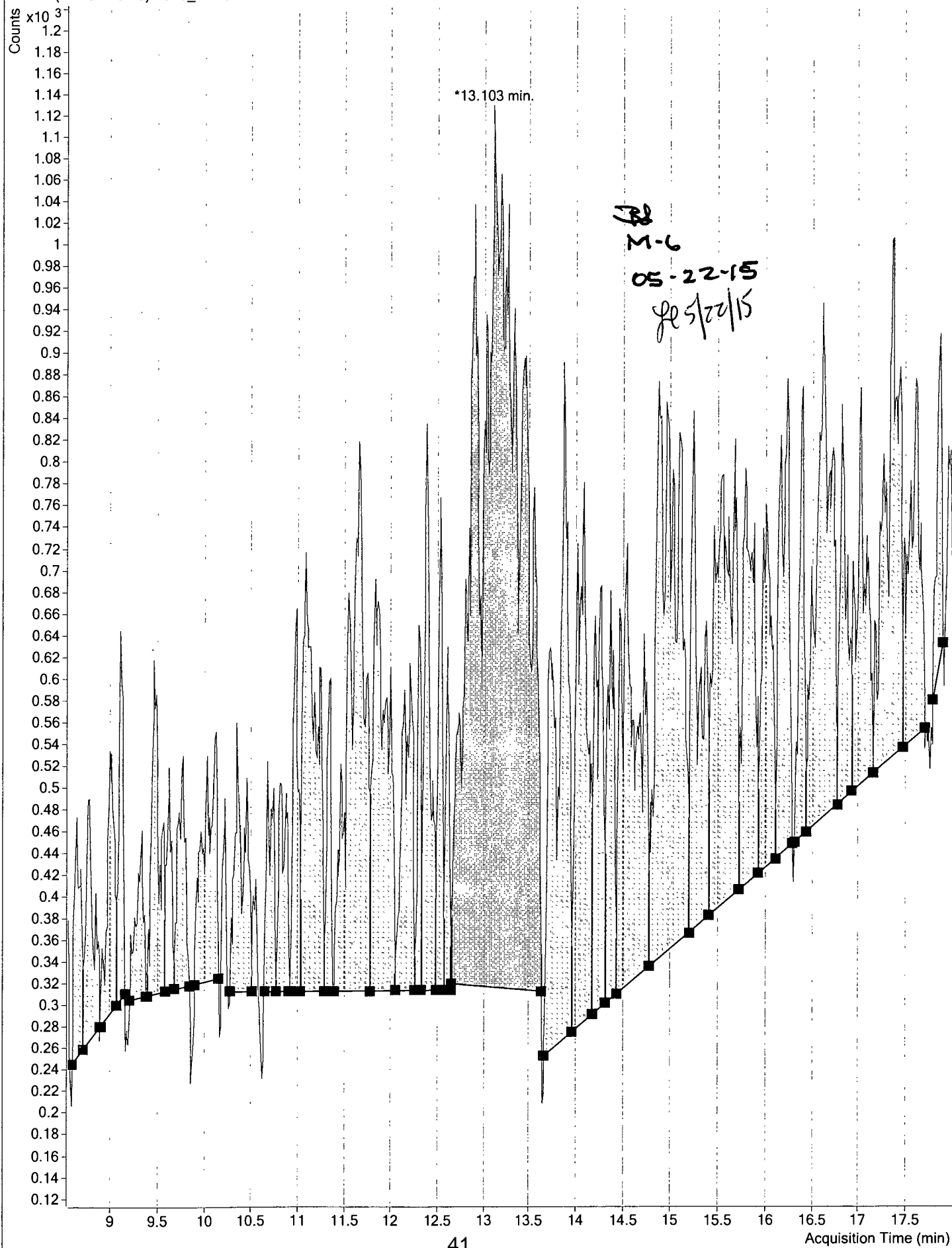


- MRM (101.0 -> 84.9) T505\_012.d





- MRM (101.0 -> 84.9) T505\_012.d





## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

Attn: Ed Corack

Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWD3-050415**

Sample Collection Date: 05/04/15

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

ARF: 76326

**APPL ID: AZ15934**

QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLMFL2  
Run #: T505\_013.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Dilution Factor: 1  
Initials: MP

Printed: 05/06/15 11:59:56 AM  
APPL-F1-SC-NoMC-REG MDLs



Data File ID: T505\_013.d

Date Injected : 05/05/15

Time Injected : 22:36

Sample ID : AZ15934\_W01 1052.6 DF 05/05/15

Client ID : S67-GWD3-050415

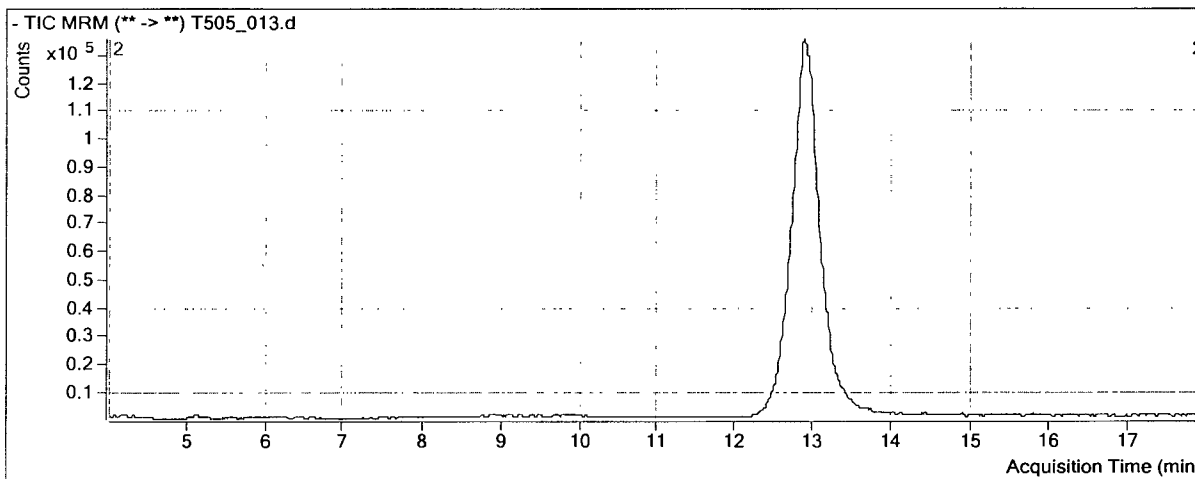
Retention Time	Area Count Response	Compound ID Product Ion			
12.906	3368014	PER_IS_89			
12.934	75479	Perchlorate_83	$(75479 * 0.0050) / (1.27 * 3368014.00) *$	1052.60 =	0.092853 ppb
12.818	* 33255	Perchlorate_85	$(33255 * 0.0050) / (0.39 * 3368014.00) *$	1052.60 =	0.132699 ppb

\* MANUAL INTEGRAION



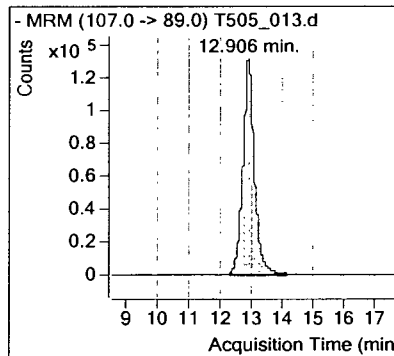
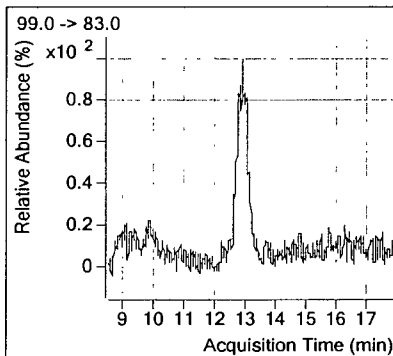
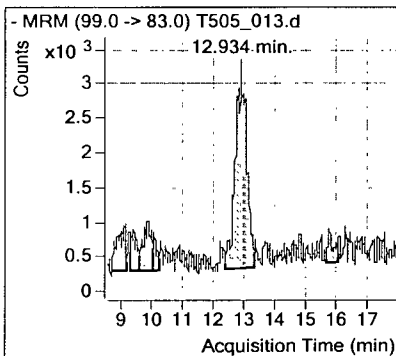
# Quantitative Analysis Sample Report

<b>Batch Data Path</b> D:\MassHunter\Data\150505\QuantResults\150505_A1_MI.batch.bin	
<b>Instrument</b> LCMS QQQ	<b>Operator</b> ba
<b>Data File</b> T505_013.d	<b>Sample Name</b> AZ15934_W01 1052.6 DF 05/05/15
<b>Sample Type</b> Sample	<b>Acq Date</b> 05/05/15
<b>Acq Method</b> 6460_ESI_PER_N_NEWER_K'_COLUMN.m	<b>Acq Time</b> 22:36
<b>ClientID</b> S67-GWD3-050415	<b>Inj Vol</b> 20

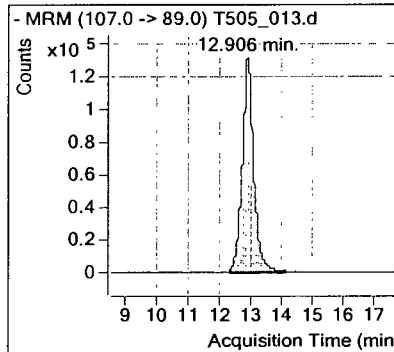
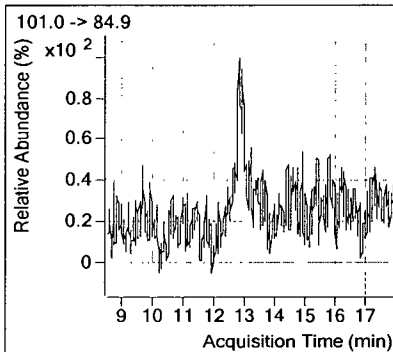
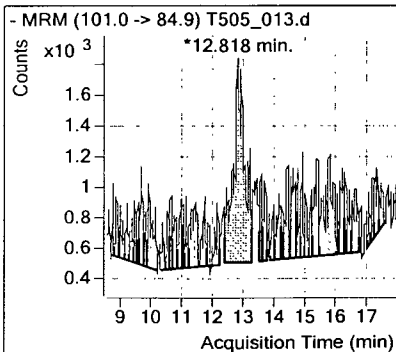


Compound	ISTD	RT	Resp	ISTD Resp	
Perchlorate_100	PER_IS_108	12.934	75479	3368014	
Perchlorate_102	PER_IS_108	* 12.818	33255	3368014	* MANUAL INT

## Perchlorate\_100

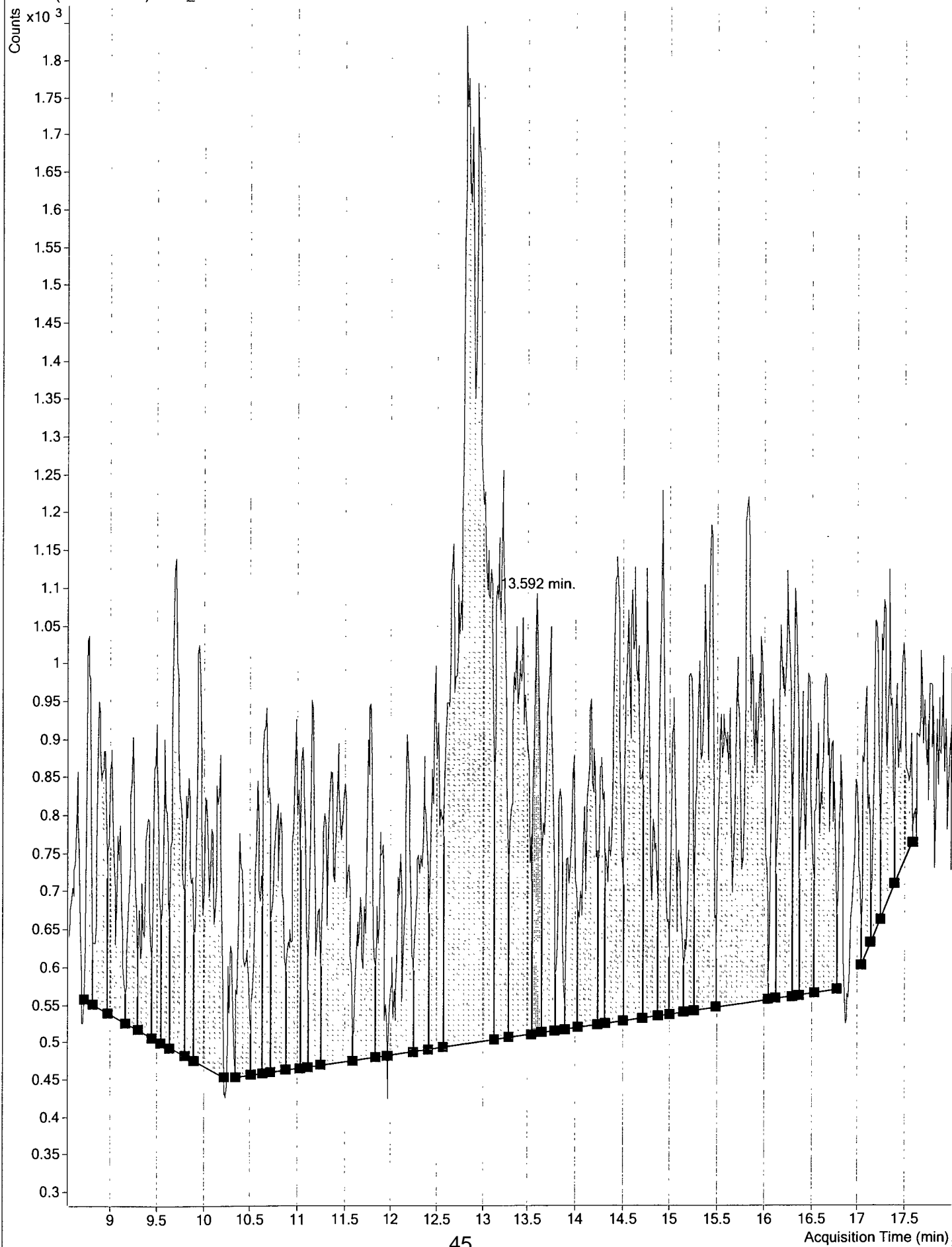


## Perchlorate\_102



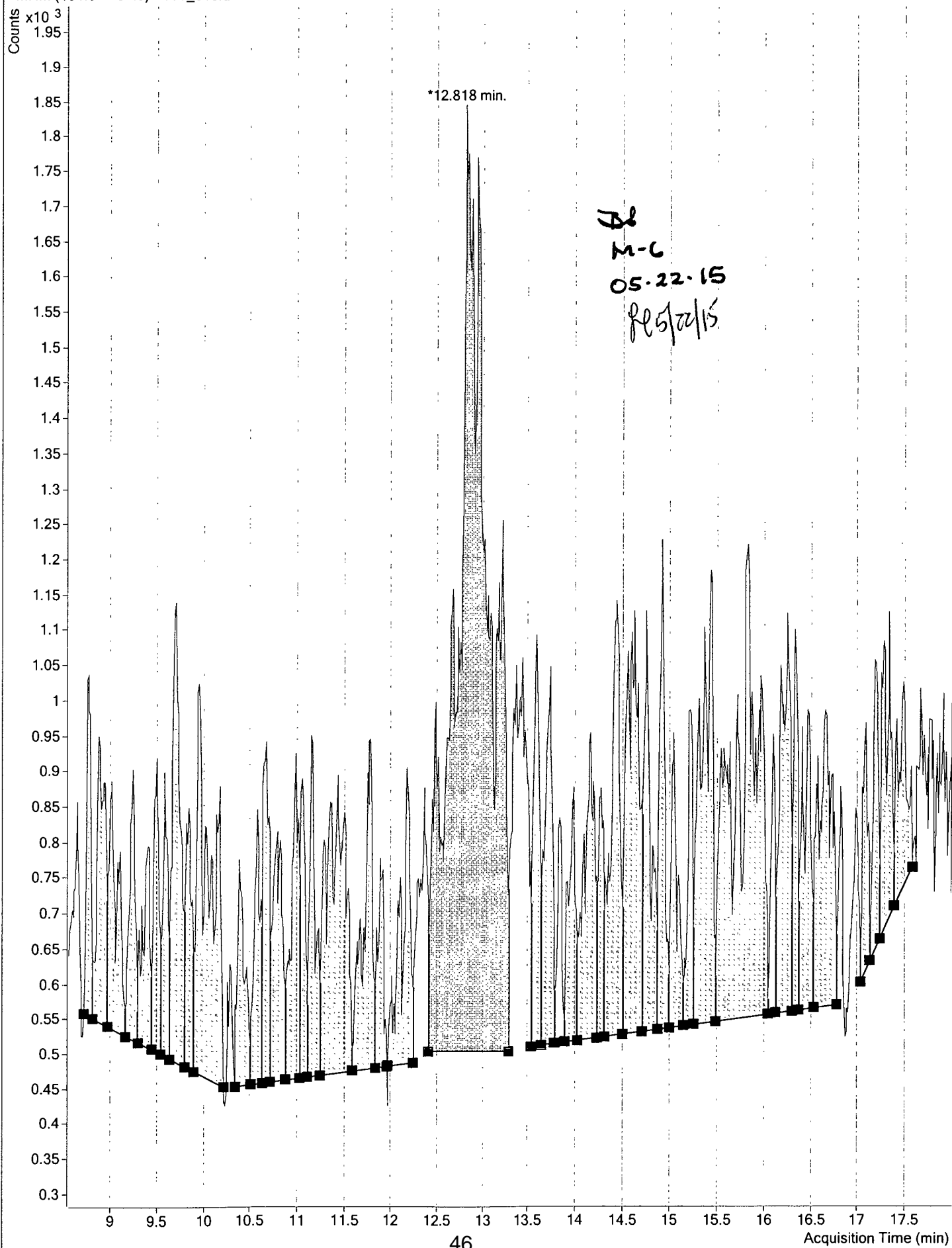


- MRM (101.0 -> 84.9) T505\_013.d





- MRM (101.0 -> 84.9) T505\_013.d





## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

Attn: Ed Corack

Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWE3-050415**

Sample Collection Date: 05/04/15

APPL Inc.

908 North Temperance Avenue  
Clovis, CA 93611

ARF: 76326

**APPL ID: AZ15935**

QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	980	60.00	40.000	20.000	ug/L	05/05/15	05/07/15

Quant Method: QTLML2  
Run #: T506\_063.d  
Instrument: AGIL\_6460  
Sequence: TQ050615  
Dilution Factor: 100  
Initials: MP

Printed: 06/02/15 12:26:51 PM  
APPL-F1-SC-NoMC-REG MDLs



Data File ID: T506\_063.d

Date Injected : 05/07/15

Time Injected : 12:33

Sample ID : AZ15935\_W01 105263.2 DF 05/05/15\_5/6

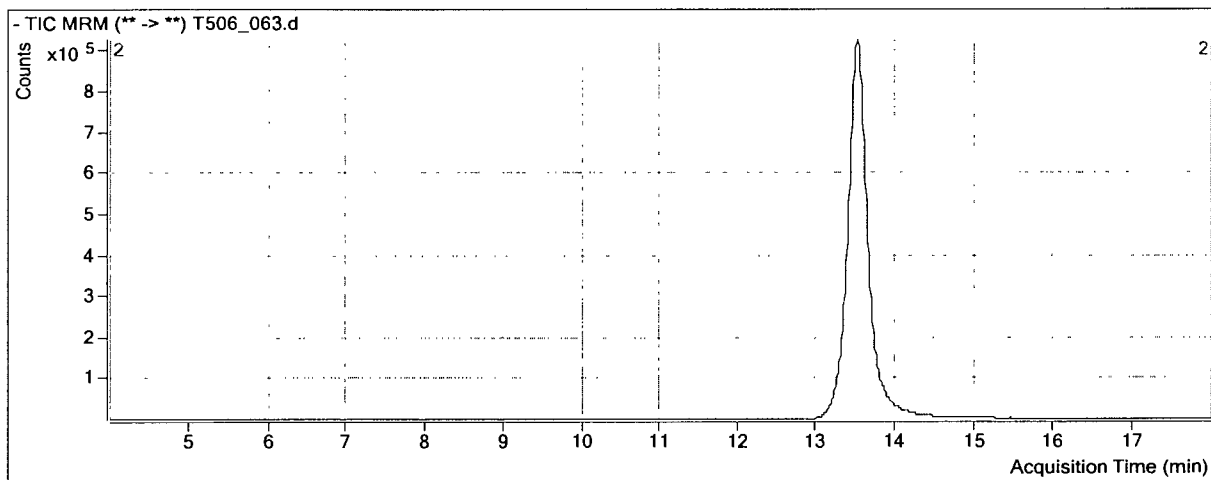
Client ID : S67-GWE3-050415

Retention Time	Area Count Response	Compound ID Product Ion		
13.548	4152512	PER_IS_89		
13.555	9789316	Perchlorate_83	$(9789316 * 0.0050) / (1.27 * 4152512.00) * 105263.20 =$	976.780578 ppb
13.562	2871792	Perchlorate_85	$(2871792 * 0.0050) / (0.39 * 4152512.00) * 105263.20 =$	929.480814 ppb



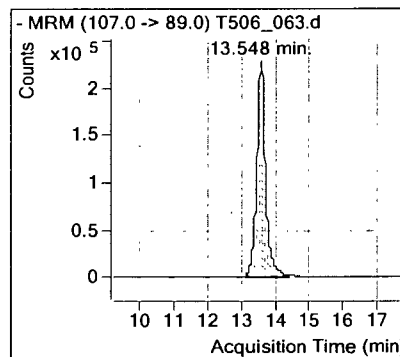
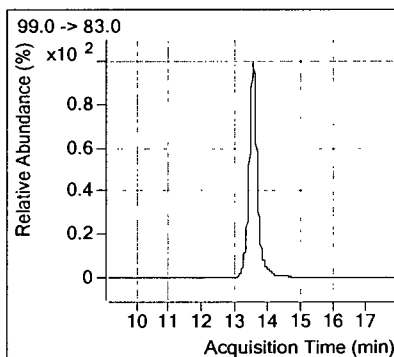
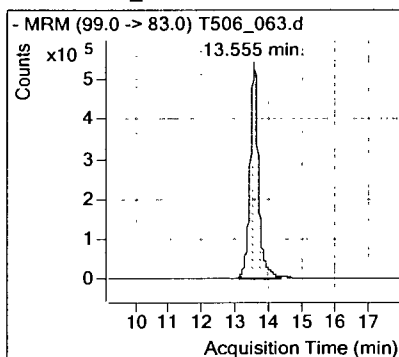
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150506\QuantResults\150506\_A2\_MI.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T506\_063.d **Sample Name** AZ15935\_W01 105263.2 DF 05/05/15\_5/6  
**Sample Type** Sample **Acq Date** 05/07/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K' COLUMN.m **Acq Time** 12:33  
**ClientID** NA **Inj Vol** 20

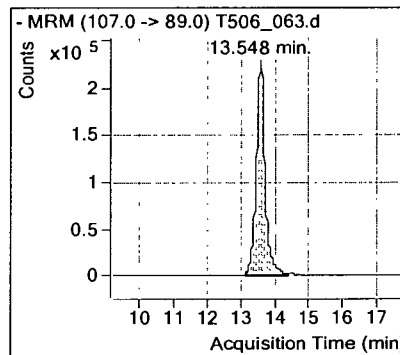
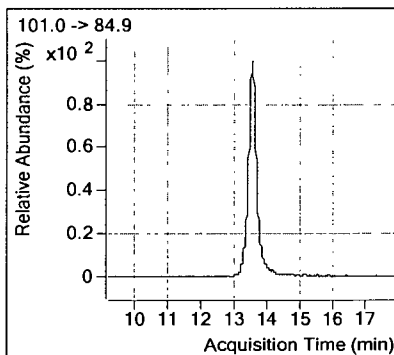
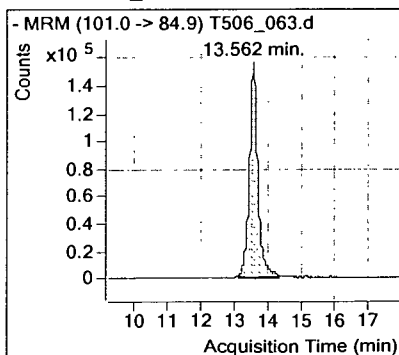


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.555	9789316	4152512
Perchlorate_102	PER_IS_108	13.562	2871792	4152512

## Perchlorate\_100



## Perchlorate\_102





## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

Attn: Ed Corack  
Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWE2-050415**  
Sample Collection Date: 05/04/15

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

ARF: 76326  
**APPL ID: AZ15936**  
QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLMFL2  
Run #: T505\_015.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Dilution Factor: 1  
Initials: MP

Printed: 05/06/15 11:59:56 AM  
APPL-F1-SC-NoMC-REG MDLs



Data File ID: T505\_015.d

Date Injected : 05/05/15

Time Injected : 23:13

Sample ID : AZ15936\_W01 1052.6 DF 05/05/15

Client ID : S67-GWE2-050415

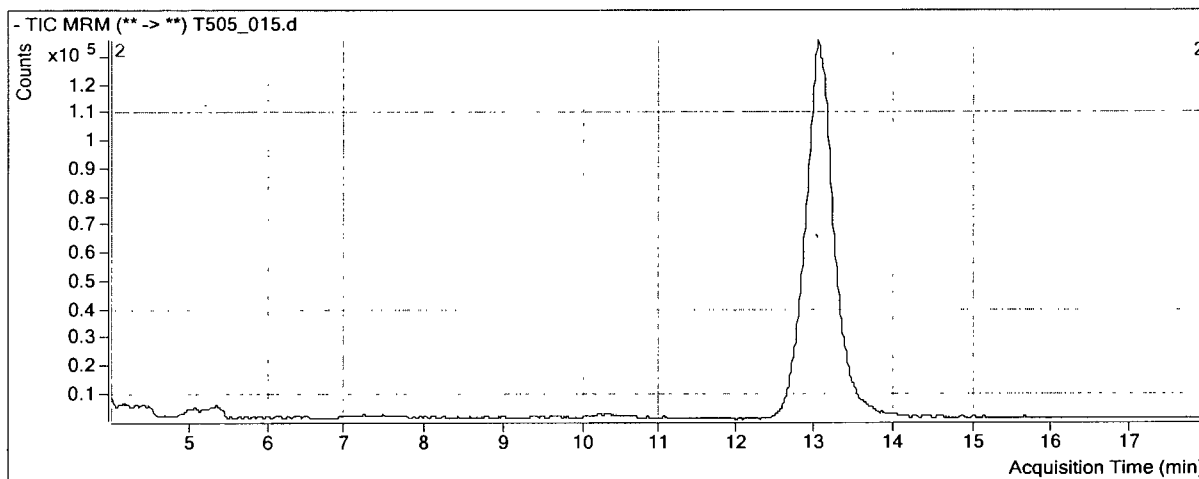
Retention Time	Area Count Response	Compound ID Product Ion			
13.069	3254506	PER_IS_89			
13.066	* 142455	Perchlorate_83	$(142455 * 0.0050) / (1.27 * 3254506.00) *$	1052.60 =	0.181357 ppb
13.083	* 48596	Perchlorate_85	$(48596 * 0.0050) / (0.39 * 3254506.00) *$	1052.60 =	0.200678 ppb
* MANUAL INTEGRAION					



# Quantitative Analysis Sample Report

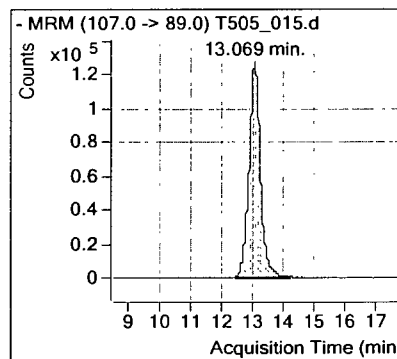
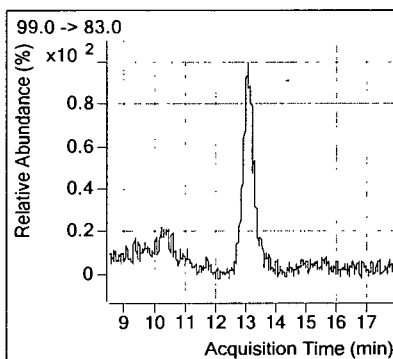
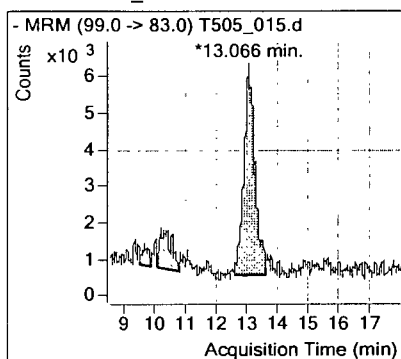
**Batch Data Path** D:\MassHunter\Data\150505\QuantResults\150505\_A1\_MI.batch.bin

<b>Instrument</b>	LCMS QQQ	<b>Operator</b>	ba
<b>Data File</b>	T505_015.d	<b>Sample Name</b>	AZ15936_W01 1052.6 DF 05/05/15
<b>Sample Type</b>	Sample	<b>Acq_Date</b>	05/05/15
<b>Acq Method</b>	6460_ESI_PER_N_NEWER_K'_COLUMN.m	<b>Acq Time</b>	23:13
<b>ClientID</b>	S67-GWE2-050415	<b>Inj Vol</b>	20

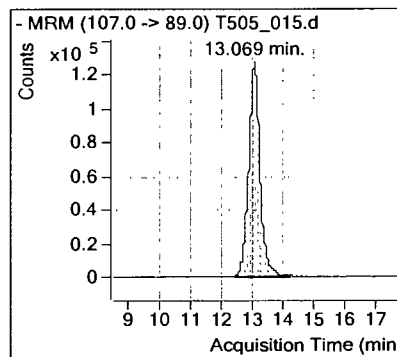
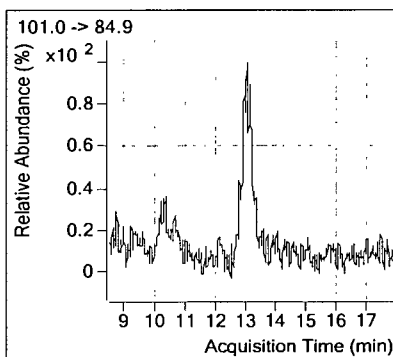
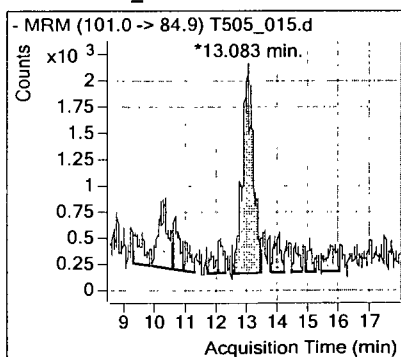


Compound	ISTD		RT	Resp	ISTD Resp	
Perchlorate_100	PER_IS_108	*	13.066	142455	3254506	* MANUAL INT
Perchlorate_102	PER_IS_108	*	13.083	48596	3254506	* MANUAL INT

## Perchlorate\_100

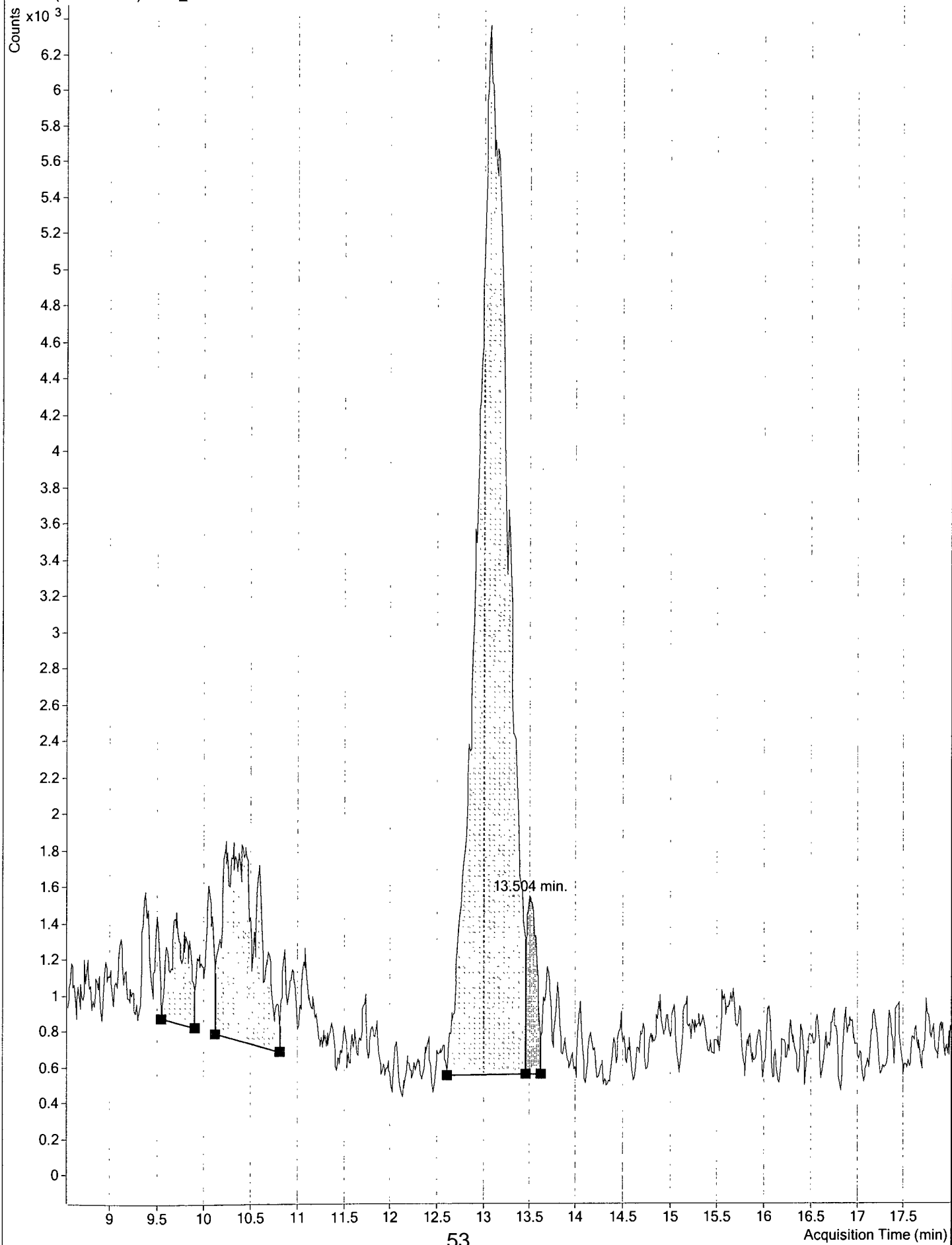


## Perchlorate\_102



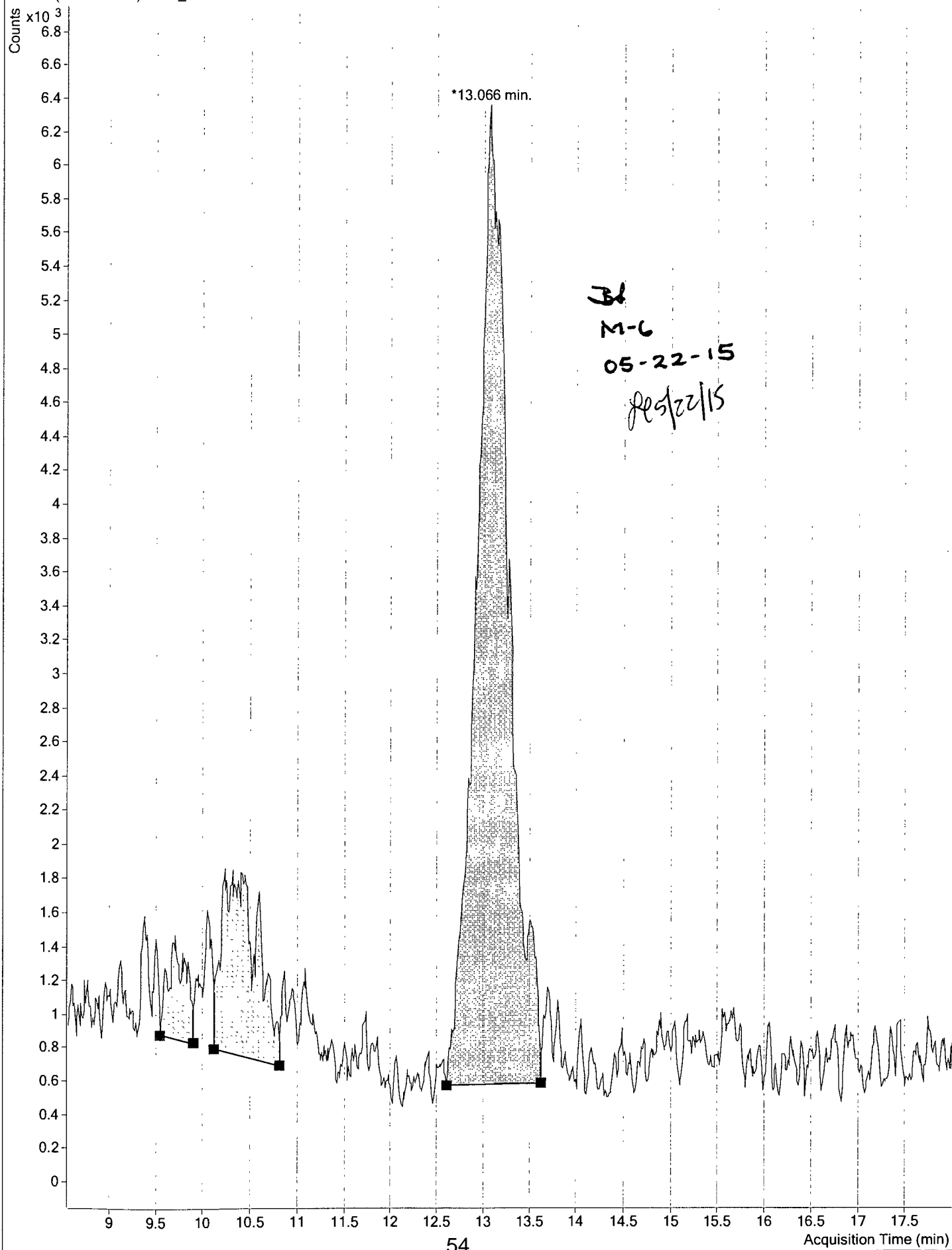


- MRM (99.0 -> 83.0) T505\_015.d



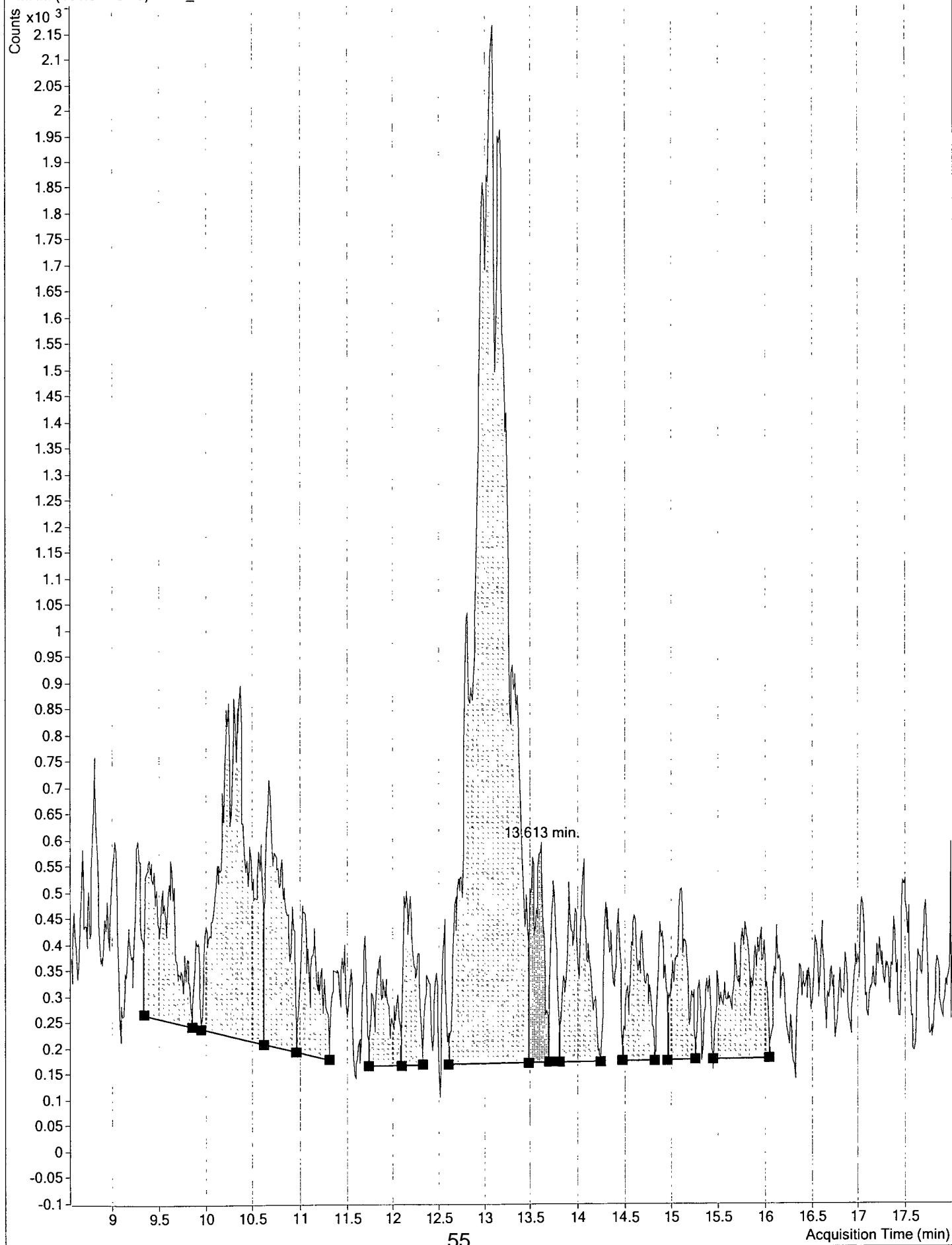


- MRM (99.0 -> 83.0) T505\_015.d



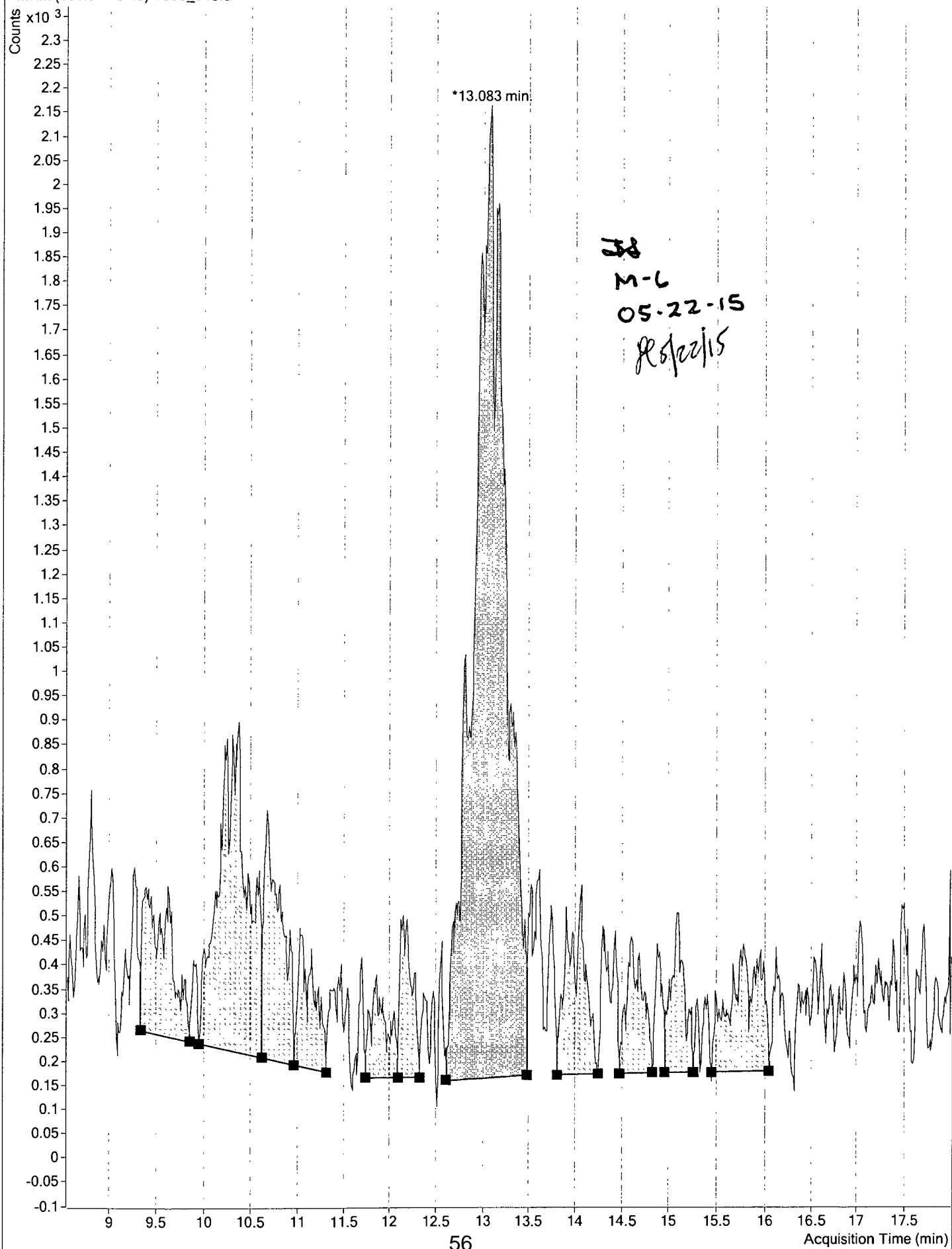


- MRM (101.0 -> 84.9) T505\_015.d





- MRM (101.0 -> 84.9) T505\_015.d





## Perchlorate

Tetra Tech  
5700 Lake Wright Dr, Ste 309  
Norfolk, VA 23502

Attn: Ed Corack  
Project: CTO JU11 112G02622 NSF Indian Head

**Sample ID: S67-GWF2-050415**

Sample Collection Date: 05/04/15

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

ARF: 76326

**APPL ID: AZ15937**

QCG: #6850-150505A-196642

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 6850	PERCHLORATE	3.1	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLMFL2  
Run #: T505\_016.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Dilution Factor: 1  
Initials: MP

Printed: 05/06/15 11:59:56 AM  
APPL-F1-SC-NoMC-REG MDLs



Data File ID: T505\_016.d

Date Injected : 05/05/15

Time Injected : 23:31

Sample ID : AZ15937\_W01 1052.6 DF 05/05/15

Client ID : S67-GWF2-050415

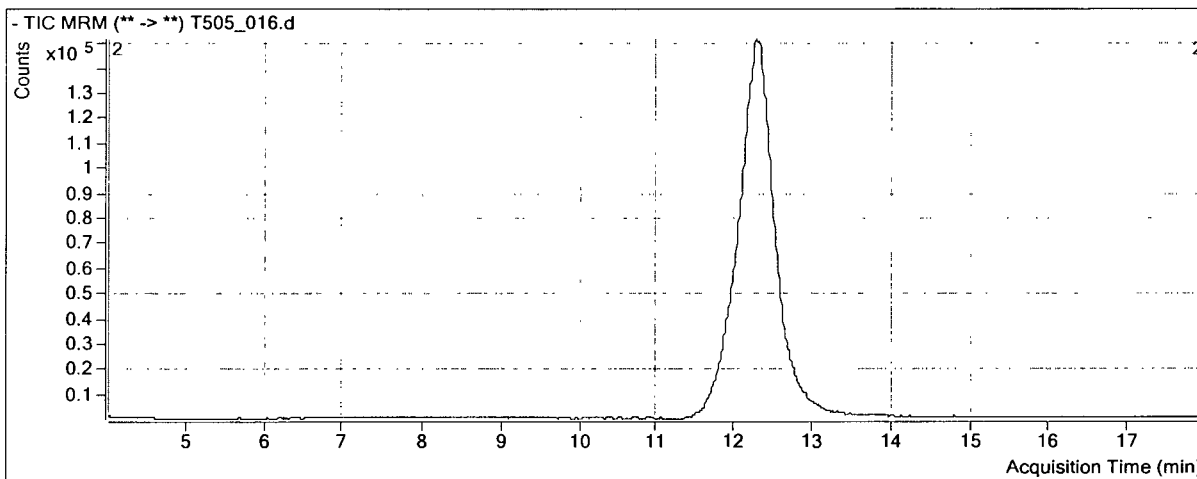
Retention Time	Area Count Response	Compound ID Product Ion			
12.305	2570258	PER_IS_89			
12.281	1905503	Perchlorate_83	$(1905503 * 0.0050) / (1.27 * 2570258.00) *$	1052.60 =	3.071675 ppb
12.319	601537	Perchlorate_85	$(601537 * 0.0050) / (0.39 * 2570258.00) *$	1052.60 =	3.145363 ppb



# Quantitative Analysis Sample Report

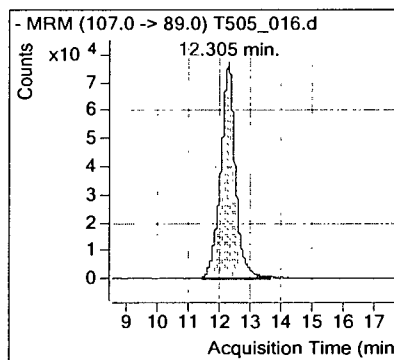
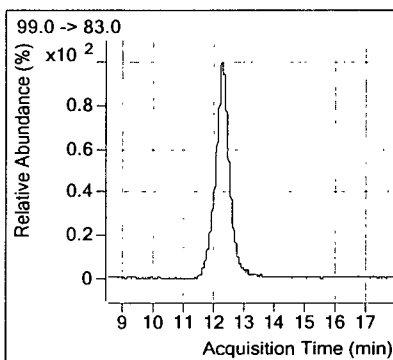
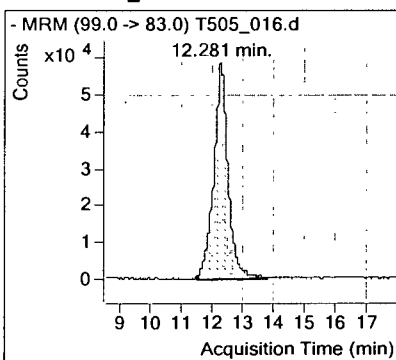
**Batch Data Path** D:\MassHunter\Data\150505\QuantResults\150505\_A1\_MI.batch.bin

<b>Instrument</b>	LCMS QQQ	<b>Operator</b>	ba
<b>Data File</b>	T505_016.d	<b>Sample Name</b>	AZ15937_W01 1052.6 DF 05/05/15
<b>Sample Type</b>	Sample	<b>Acq Date</b>	05/05/15
<b>Acq Method</b>	6460_ESI_PER_N_NEWER_K'_COLUMN.m	<b>Acq Time</b>	23:31
<b>ClientID</b>	S67-GWF2-050415	<b>Inj Vol</b>	20

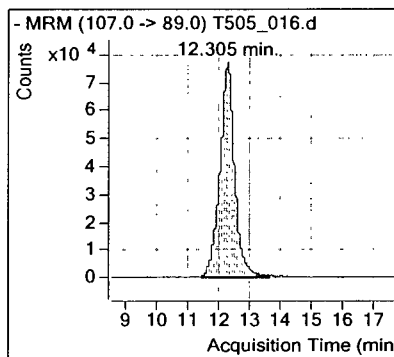
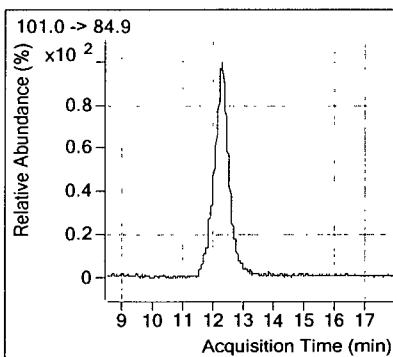
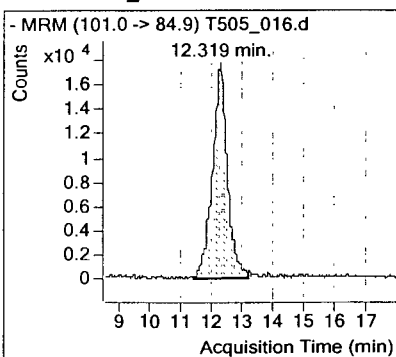


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	12.281	1905503	2570258
Perchlorate_102	PER_IS_108	12.319	601537	2570258

## Perchlorate\_100



## Perchlorate\_102





**EPA METHOD 6850**  
**Perchlorate**  
**LC/MS**

**Calibration Data**



## METHOD 6850 CALIBRATION SUMMARY

Lab Name: APPL Inc.

DETECTOR ID : Agilent 6460 Triple Quad LC/MS

### Average Relative Response Factor Summary

Analyte Id:	R.R.F.#1 PERCHLORATE 0.0002 PPM	R.R.F.#2 PERCHLORATE 0.0004 PPM	R.R.F.#3 PERCHLORATE 0.001 PPM	R.R.F.#4 PERCHLORATE 0.002 PPM	R.R.F.#5 PERCHLORATE 0.005 PPM	R.R.F.#6 PERCHLORATE 0.010 PPM	AVERAGE REL.RESP. FACTOR	%RSD RRF
Perchlorate_83 Perchlorate_85	1.339537 0.434068	1.198791 0.395112	1.165697 0.366889	1.173646 0.354937	1.314663 0.381638	1.429198 0.416989	1.270255 0.391605	8.44 7.67

FILE ID : TQ0312A.FRB



Perchlorate\_83

RESPONSE FACTOR CALCULATIONS - AREA COUNTS

DATA FILES : T312\_003.d - T312\_008.d

The Data points that were Read Were

Standard Response	Standard Concentration µg/ml	Internal Standard Response	Internal Standard Concentration µg/ml	Response Factor	RPD	XRSD
446712.00	0.0002	8337058.00	0.0050	1.339537	5.45	8.44
1023403.00	0.0004	10671196.00	0.0050	1.198791	5.63	
2483393.00	0.0010	10651968.00	0.0050	1.165697	8.23	
6351752.00	0.0020	13529952.00	0.0050	1.173646	7.61	
14499255.00	0.0050	11028880.00	0.0050	1.314663	3.50	
34223790.00	0.0100	11973072.00	0.0050	1.429198	12.51	

The Average Response Factor = 1.270255



Perchlorate\_85

RESPONSE FACTOR CALCULATIONS - AREA COUNTS

DATA FILES : T312\_003.d - T312\_008.d

The Data points that were Read Were

Standard Response	Standard Concentration µg/ml	Internal Standard Response	Internal Standard Concentration µg/ml	Response Factor	RPD	%RSD
144754.00	0.0002	8337058.00	0.0050	0.434068	10.84	7.67
337305.00	0.0004	10671196.00	0.0050	0.395112	0.90	
781617.00	0.0010	10651968.00	0.0050	0.366889	6.31	
1920912.00	0.0020	13529952.00	0.0050	0.354937	9.36	
4209044.00	0.0050	11028880.00	0.0050	0.381638	2.55	
9985270.00	0.0100	11973072.00	0.0050	0.416989	6.48	

The Average Response Factor = 0.391605



Data File ID: T312\_003.d

Date Injected : 03/12/15

Time Injected : 17:52

Sample ID : PERCHLORATE 0.0002 ug/ml 11/11/14

Client ID : NA

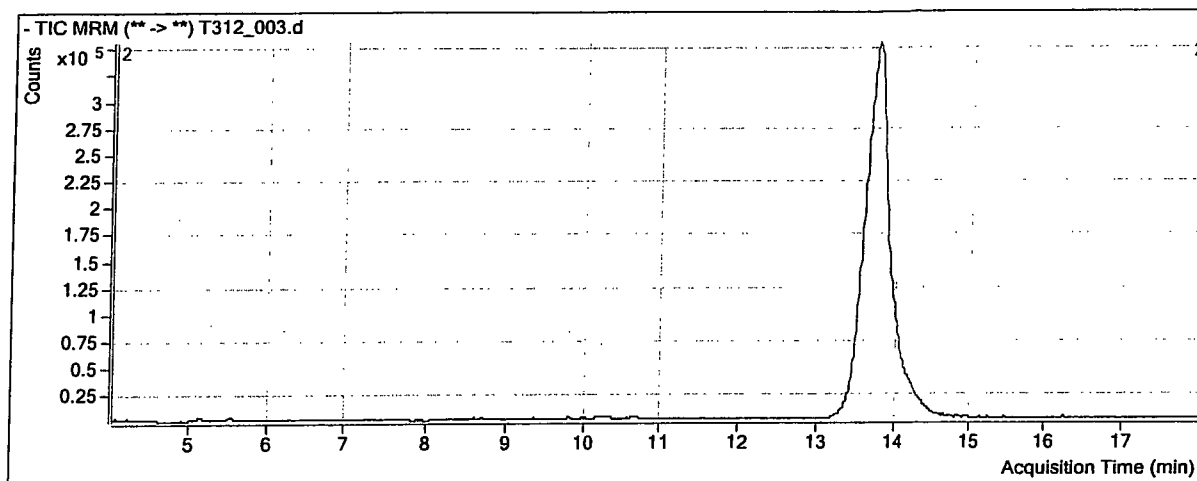
Retention Time	Area Count Response	Compound_ID Product Ion
13.732	8337058	PER_IS_89
13.789	* 446712	Perchlorate_83
13.704	144754	Perchlorate_85

\* MANUAL INTEGRAION



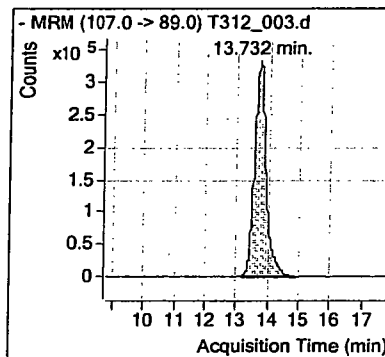
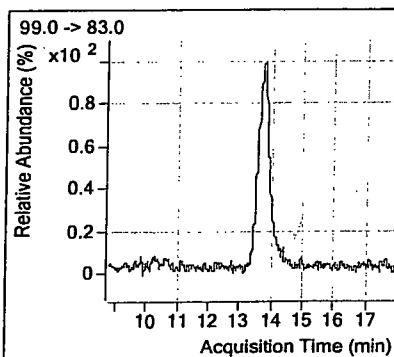
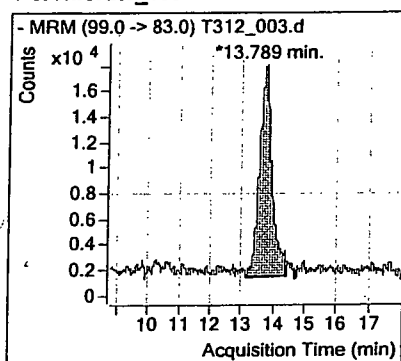
# Quantitative Analysis Sample Report

<b>Batch Data Path</b> D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin	
<b>Instrument</b> LCMS QQQ	<b>Operator</b> ba
<b>Data File</b> T312_003.d	<b>Sample Name</b> PERCHLORATE 0.0002 ug/ml 11/11/14
<b>Sample Type</b> Sample	<b>Acq Date</b> 03/12/15
<b>Acq Method</b> 6460_ESI_PER_N_NEWER_K_COLUMN.m	<b>Acq Time</b> 17:52
<b>ClientID</b> NA	<b>Inj Vol</b> 20

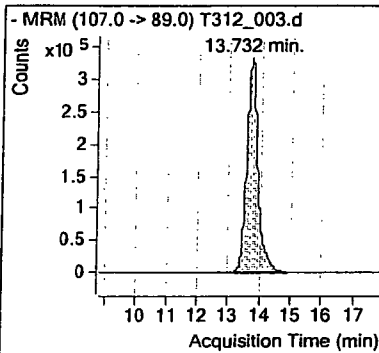
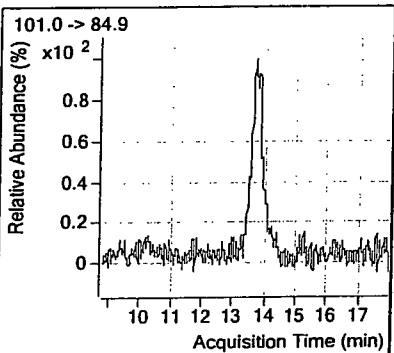
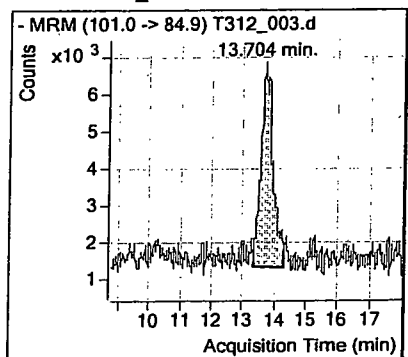


Compound	ISTD		RT	Resp	ISTD Resp	
Perchlorate_100	PER_IS_108	*	13.789	446712	8337058	* MANUAL INT
Perchlorate_102	PER_IS_108		13.704	144754	8337058	

## Perchlorate\_100

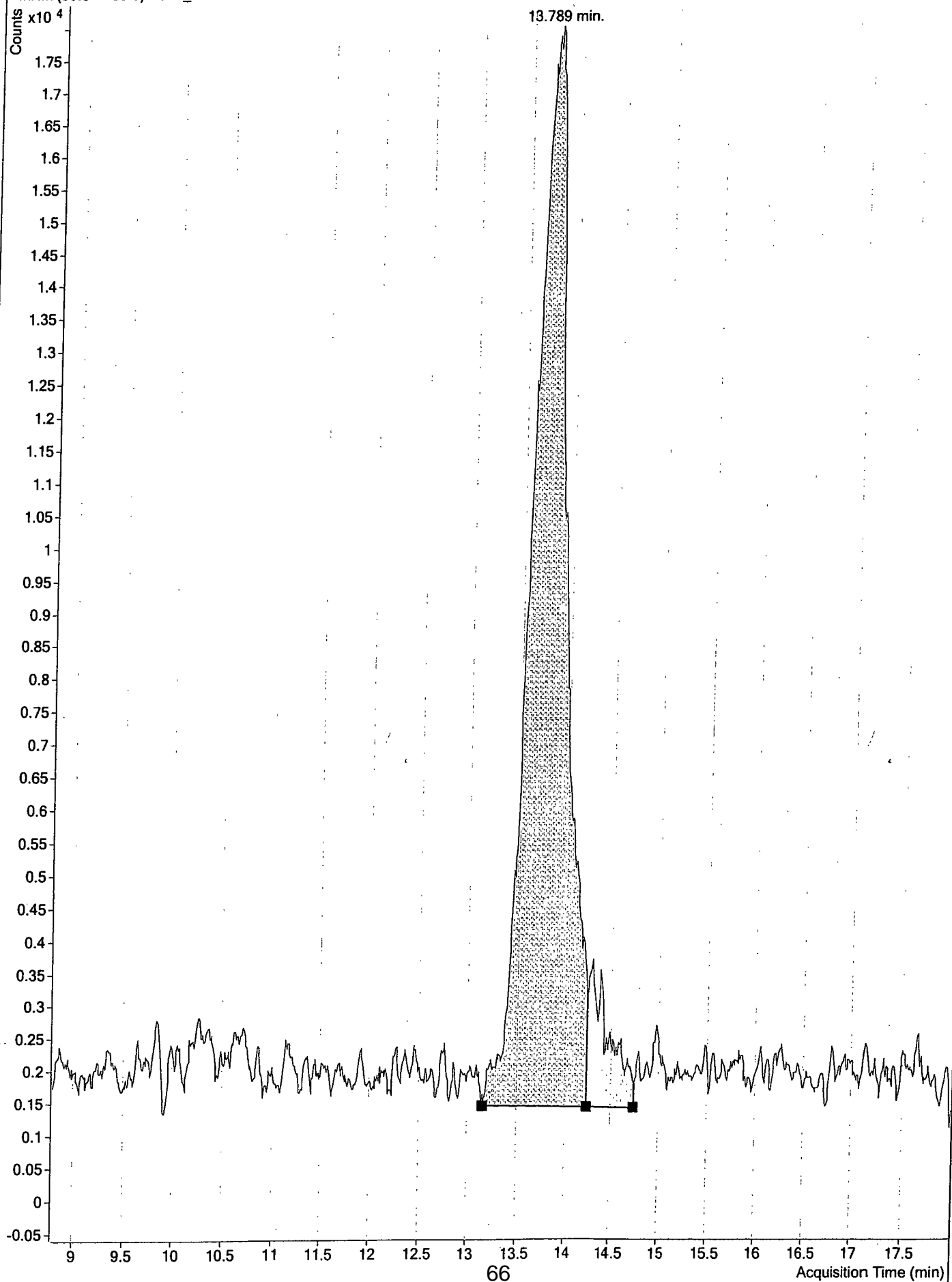


## Perchlorate\_102



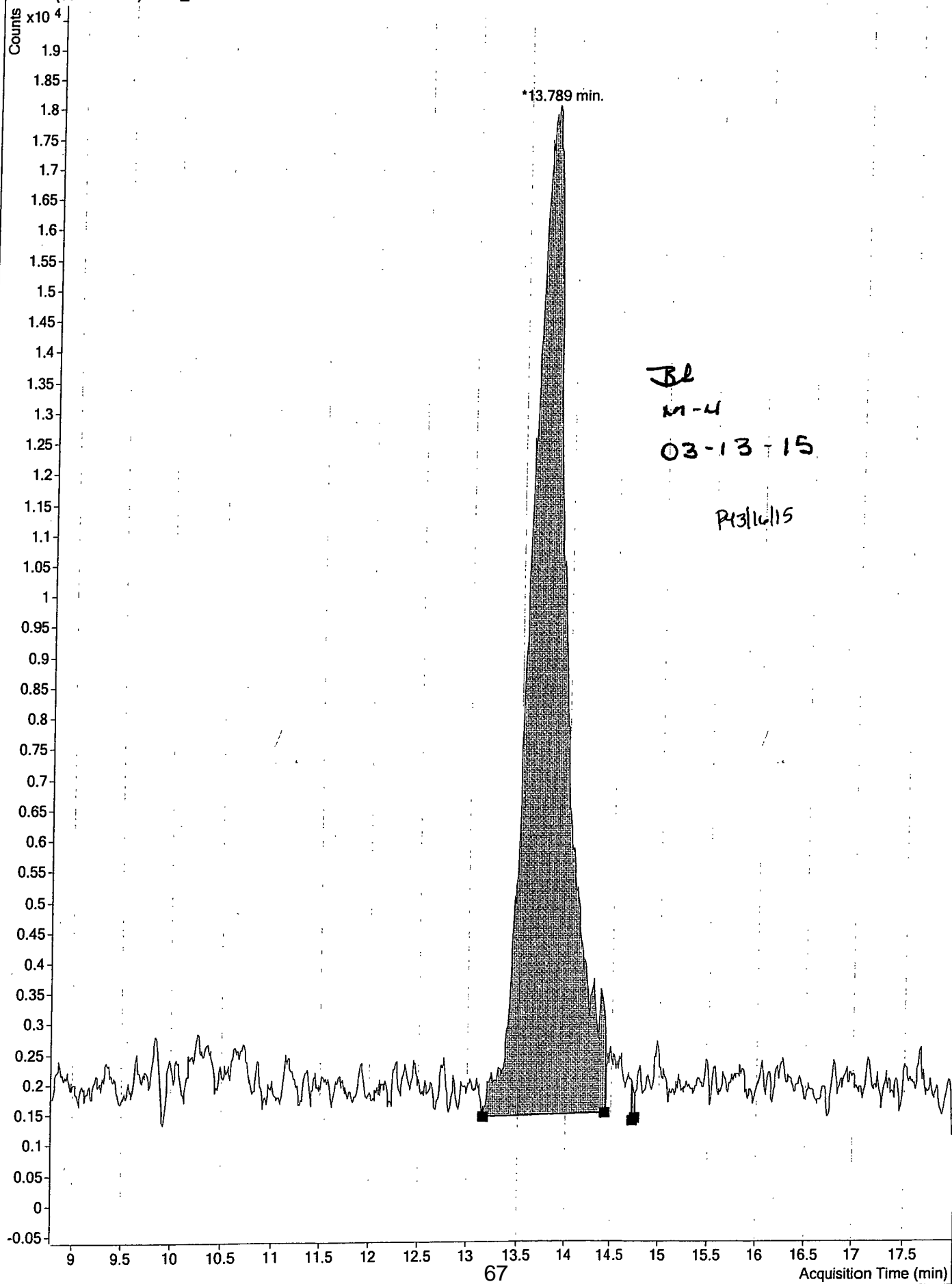


-MRM (99.0 -> 83.0) T312\_003.d





- MRM (99.0 -> 83.0) T312\_003.d





Data File ID: T312\_004.d

Date Injected : 03/12/15

Time Injected : 18:11

Sample ID : PERCHLORATE 0.0004 ug/ml 11/11/14

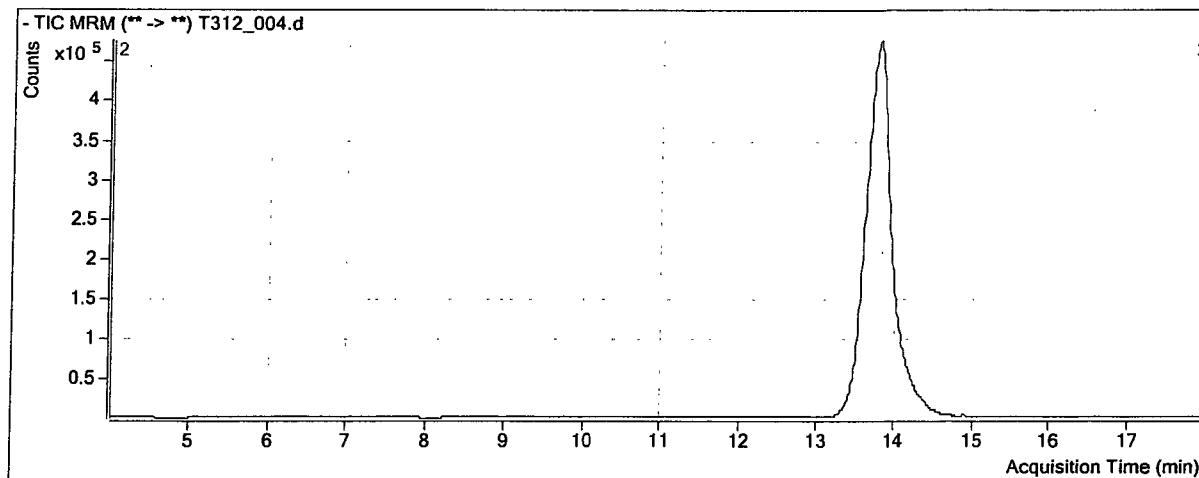
Client ID : NA

Retention Time	Area Count Response	Compound ID Product Ion
13.783	10671196	PER_IS_89
13.8	1023403	Perchlorate_83
13.827	337305	Perchlorate_85



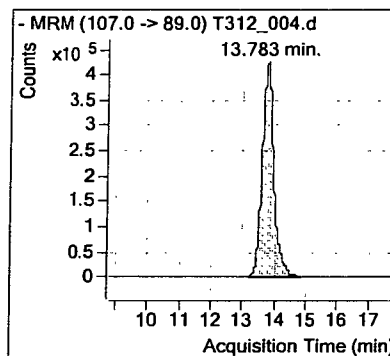
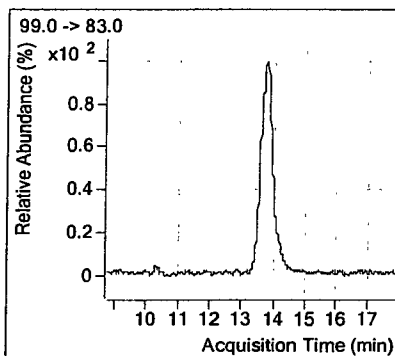
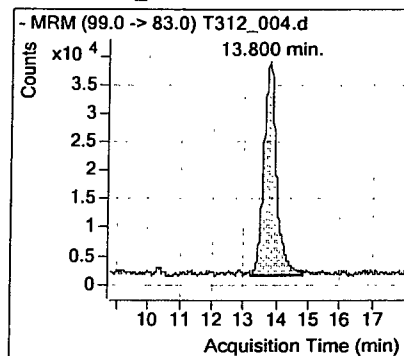
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150312\QuantResults\150312\_A1\_MI.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T312\_004.d **Sample Name** PERCHLORATE 0.0004 ug/ml 11/11/14  
**Sample Type** Sample **Acq Date** 03/12/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K'\_COLUMN.m **Acq Time** 18:11  
**ClientID** NA **Inj Vol** 20

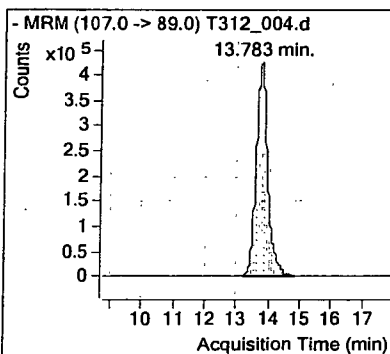
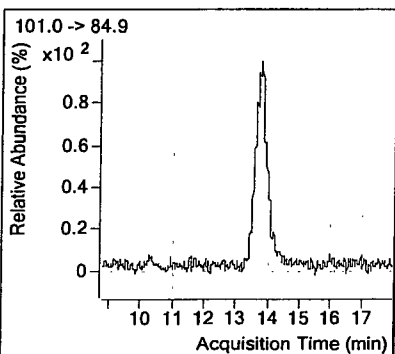
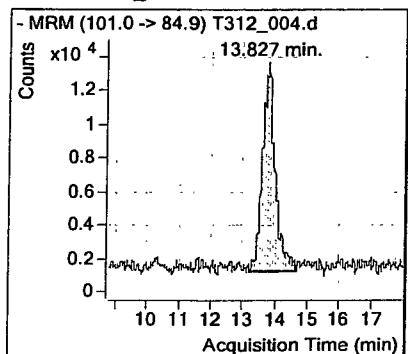


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.800	1023403	10671196
Perchlorate_102	PER_IS_108	13.827	337305	10671196

## Perchlorate\_100



## Perchlorate\_102





Data File ID: T312\_005.d

Date Injected : 03/12/15

Time Injected : 18:29

Sample ID : PERCHLORATE 0.001 ug/ml 11/11/14

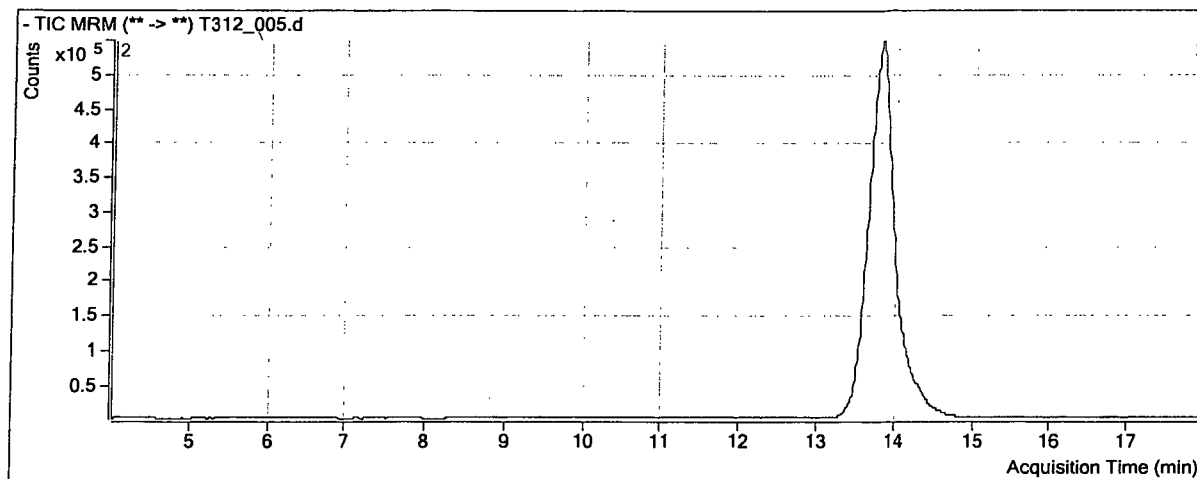
Client ID : NA

Retention Time	Area Count Response	Compound ID Product Ion
13.803	10651968	PER_IS_89
13.82	2483393	Perchlorate_83
13.827	781617	Perchlorate_85



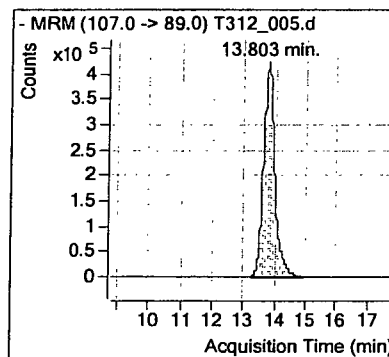
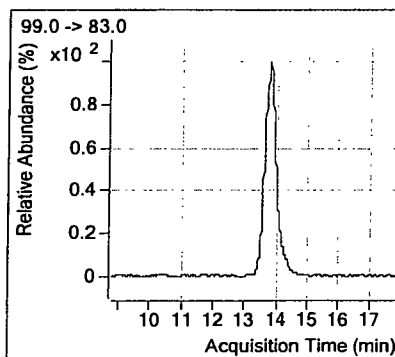
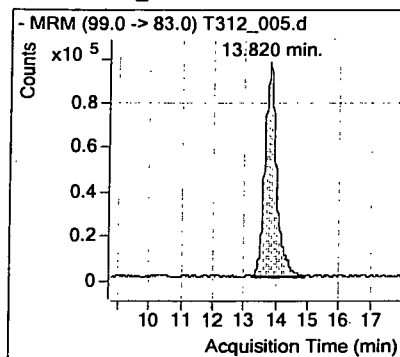
# Quantitative Analysis Sample Report

<b>Batch Data Path</b> D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin	
<b>Instrument</b> LCMS QQQ	<b>Operator</b> ba
<b>Data File</b> T312_005.d	<b>Sample Name</b> PERCHLORATE 0.001 ug/ml 11/11/14
<b>Sample Type</b> Sample	<b>Acq_Date</b> 03/12/15
<b>Acq Method</b> 6460_ESI_PER_N_NEWER_K'_COLUMN.m	<b>Acq Time</b> 18:29
<b>ClientID</b> NA	<b>Inj Vol</b> 20

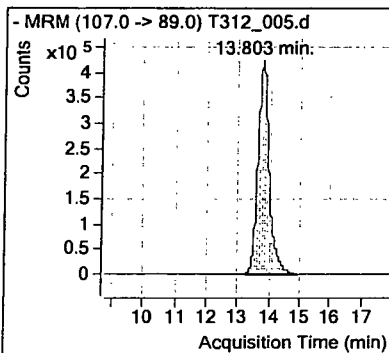
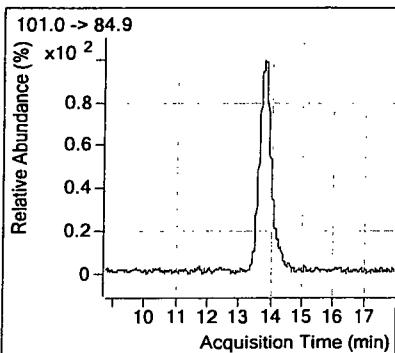
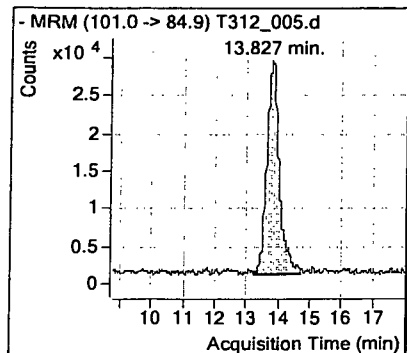


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.820	2483393	10651968
Perchlorate_102	PER_IS_108	13.827	781617	10651968

## Perchlorate\_100



## Perchlorate\_102





Data File ID: T312\_006.d

Date Injected : 03/12/15

Time Injected : 18:48

Sample ID : PERCHLORATE 0.002 ug/ml 11/11/14

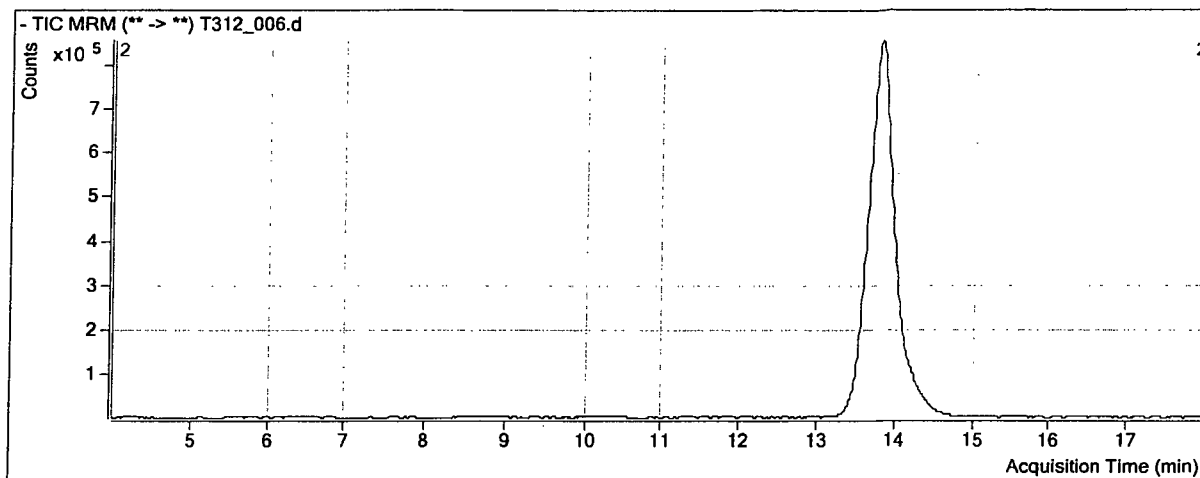
Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.803	13529952	PER_IS_89
13.83	6351752	Perchlorate_83
13.817	1920912	Perchlorate_85



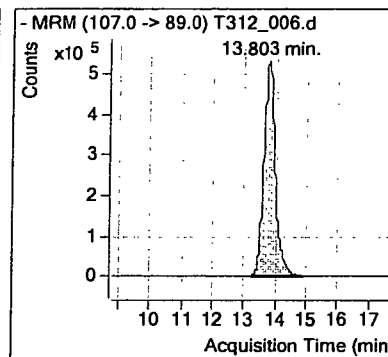
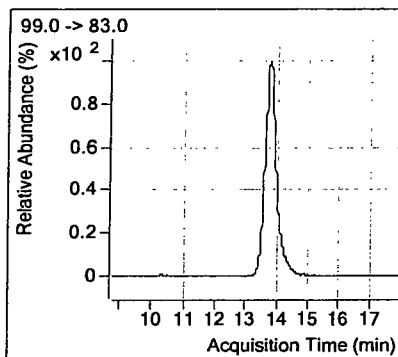
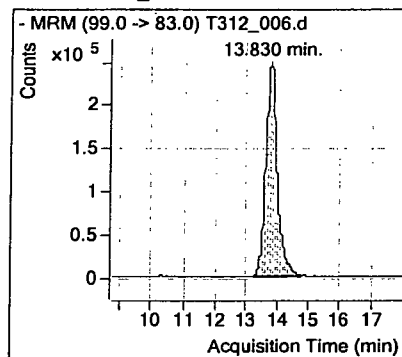
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150312\QuantResults\150312\_A1\_MI.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T312\_006.d **Sample Name** PERCHLORATE 0.002 ug/ml 11/11/14  
**Sample Type** Sample **Acq Date** 03/12/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K\_COLUMN.m **Acq Time** 18:48  
**ClientID** NA **Inj Vol** 20

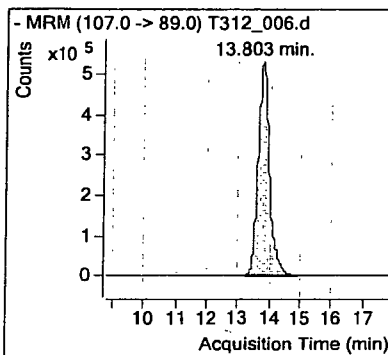
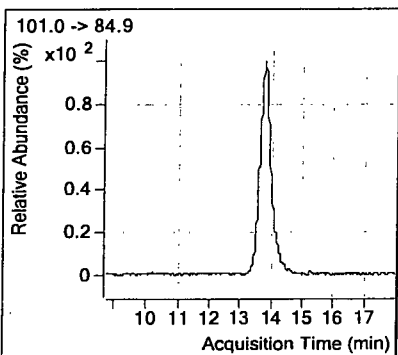
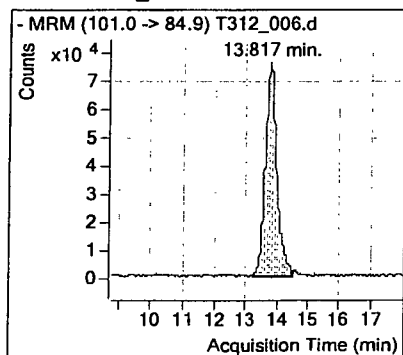


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.830	6351752	13529952
Perchlorate_102	PER_IS_108	13.817	1920912	13529952

## Perchlorate\_100



## Perchlorate\_102





Data File ID: T312\_007.d

Date Injected : 03/12/15

Time Injected : 19:07

Sample ID : PERCHLORATE 0.005 ug/ml 11/11/14

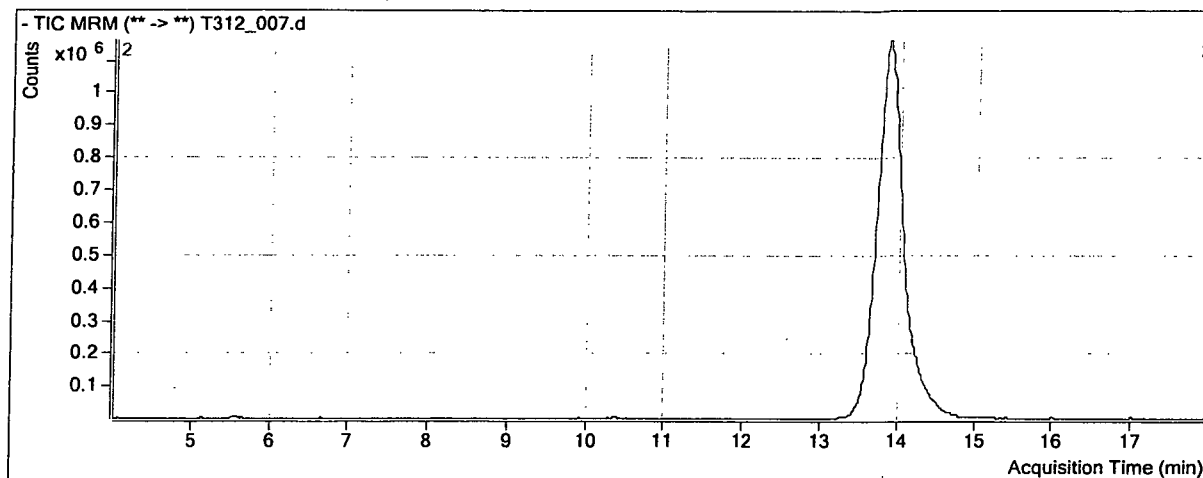
Client ID : NA

Retention Time	Area Count Response	Compound ID Product Ion
13.874	11028880	PER_IS_89
13.861	14499255	Perchlorate_83
13.878	4209044	Perchlorate_85



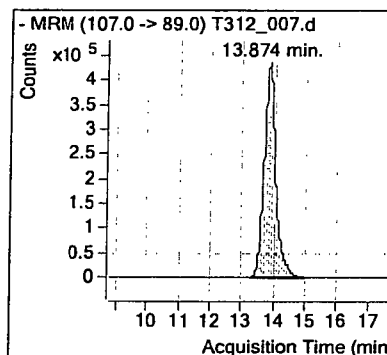
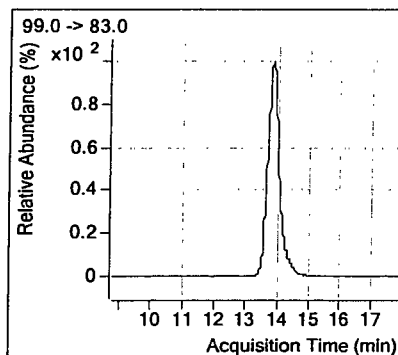
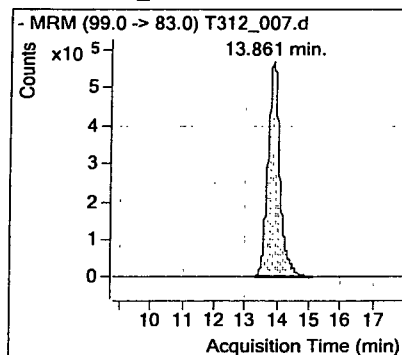
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150312\QuantResults\150312\_A1\_MI.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T312\_007.d **Sample Name** PERCHLORATE 0.005 ug/ml 11/11/14  
**Sample Type** Sample **Acq Date** 03/12/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K\_COLUMN.m **Acq Time** 19:07  
**ClientID** NA **Inj Vol** 20

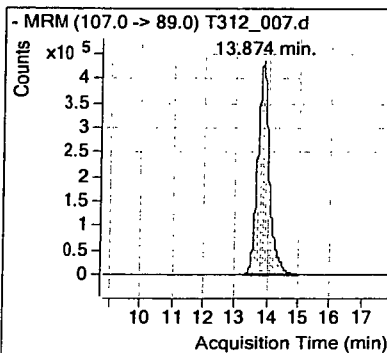
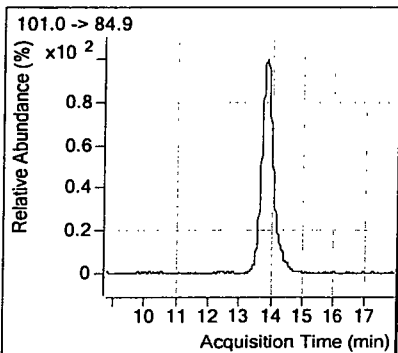
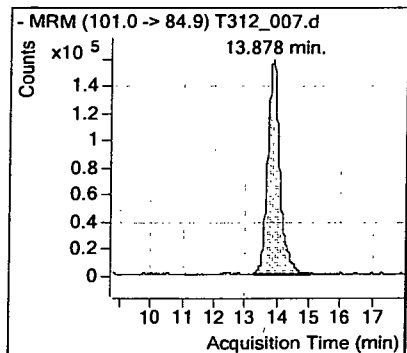


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.861	14499255	11028880
Perchlorate_102	PER_IS_108	13.878	4209044	11028880

## Perchlorate\_100



## Perchlorate\_102





Data File ID: T312\_008.d

Date Injected : 03/12/15

Time Injected : 19:25

Sample ID : PERCHLORATE 0.010 ug/ml 08/27/14

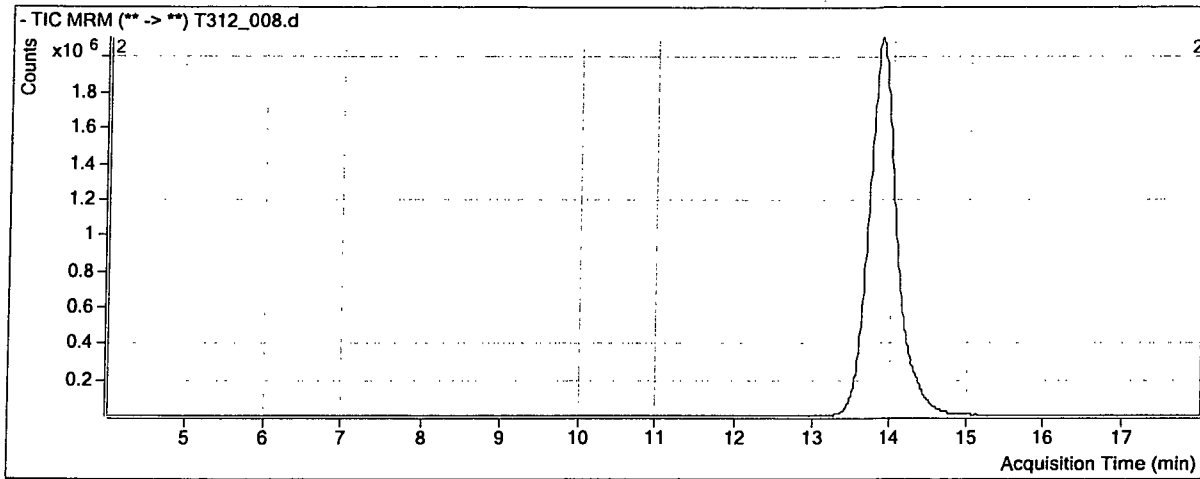
Client ID : NA

Retention Time	Area Count Response	Compound ID Product Ion
13.874	11973072	PER_IS_89
13.881	34223790	Perchlorate_83
13.878	9985270	Perchlorate_85



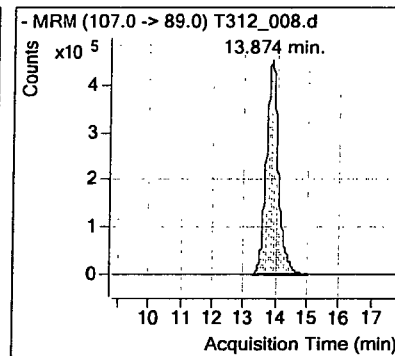
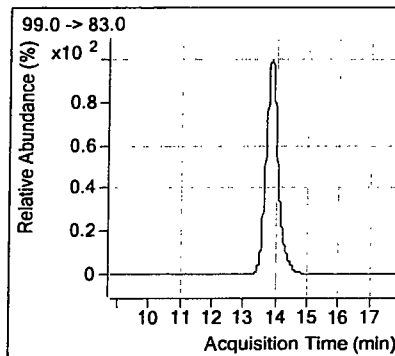
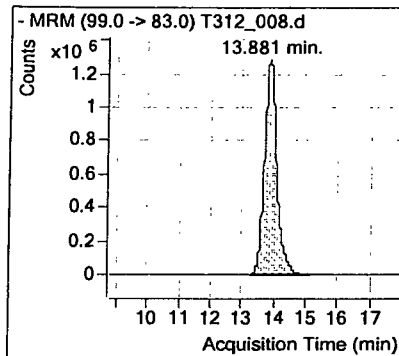
# Quantitative Analysis Sample Report

<b>Batch Data Path</b> D:\MassHunter\Data\150312\QuantResults\150312_A1_MI.batch.bin	
<b>Instrument</b> LCMS QQQ	<b>Operator</b> ba
<b>Data File</b> T312_008.d	<b>Sample Name</b> PERCHLORATE 0.010 ug/ml 08/27/14
<b>Sample Type</b> Sample	<b>Acq_Date</b> 03/12/15
<b>Acq Method</b> 6460_ESI_PER_N_NEWER_K_COLUMN.m	<b>Acq Time</b> 19:25
<b>ClientID</b> NA	<b>Inj Vol</b> 20

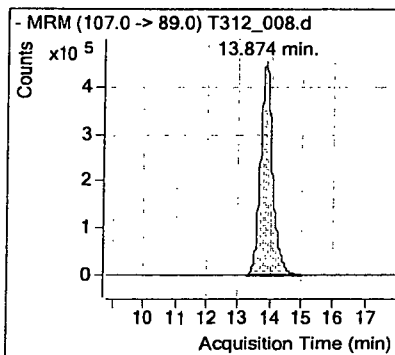
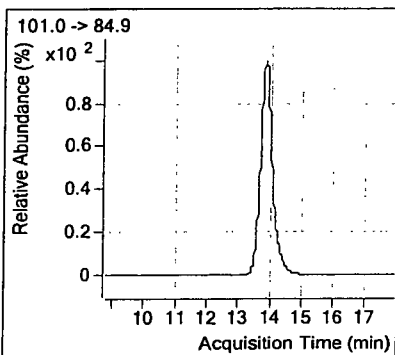
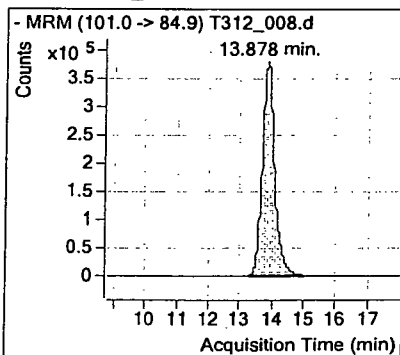


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.881	34223790	11973072
Perchlorate_102	PER_IS_108	13.878	9985270	11973072

## Perchlorate\_100



## Perchlorate\_102





## SECOND SOURCE CALIBRATION VERIFICATION SUMMARY FORM

**Lab Name: APPL Inc.**

**Detector ID: Agilent 6460 Triple Quad LC/MS     DATA FILE ID: T312\_010.d**

Date (s) of From:03/12/15 Analysis To:03/12/15 Time (s) of From:17:33 Analysis To:19:44				Date of Analysis: 03/12/15 Time of Analysis: 20:02 Standard Id: PER SS (Standard) 0.0004ug/ml				
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.50	13.40	13.60	1.270255	13.94	1.418633	N	11.7
Perchlorate_85	13.54	13.44	13.64	0.391605	13.96	0.424457	N	8.4

FILE ID : TQCK1210.RFB



Data File ID: T312\_010.d

Date Injected : 03/12/15

Time Injected : 20:02

Sample ID : PER\_SS 0.0004 ug/ml 11/11/14

Client ID : NA

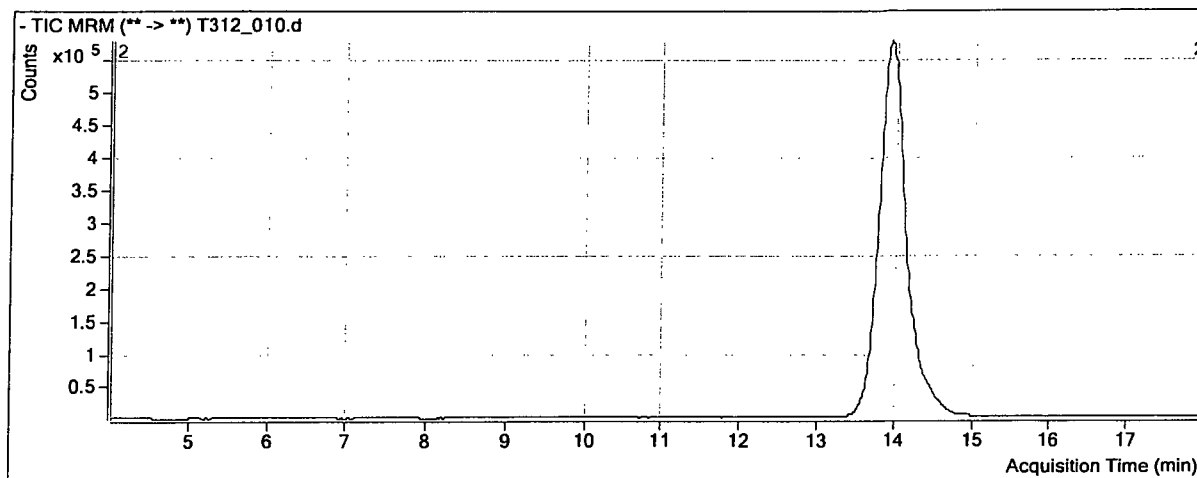
Retention Time	Area Count Response	Compound ID Product Ion
13.946	12977621	PER_IS_89
13.942	1472839	Perchlorate_83
13.959	440675	Perchlorate_85



# Quantitative Analysis Sample Report

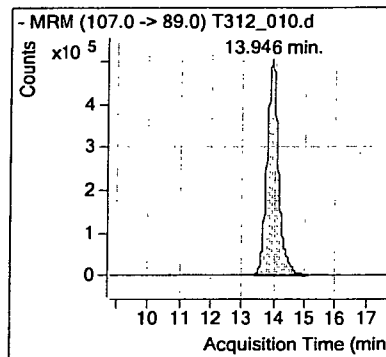
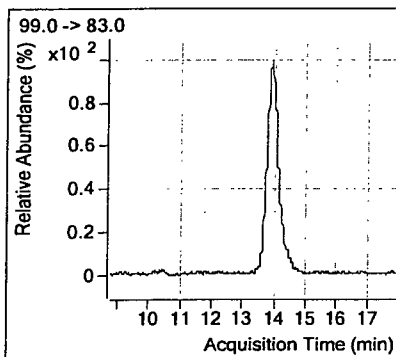
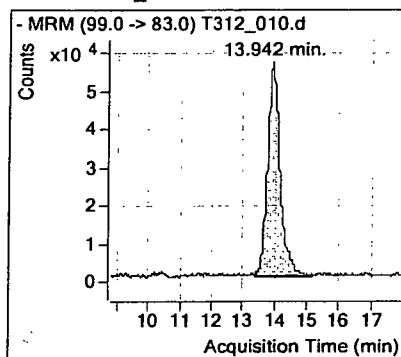
**Batch Data Path** D:\MassHunter\Data\150312\QuantResults\150312\_A1\_MI.batch.bin

<b>Instrument</b>	LCMS QQQ	<b>Operator</b>	ba
<b>Data File</b>	T312_010.d	<b>Sample Name</b>	PER_SS 0.0004 ug/ml 11/11/14
<b>Sample Type</b>	Sample	<b>Acq Date</b>	03/12/15
<b>Acq Method</b>	6460_ESI_PER_N_NEWER_K_COLUMN.m	<b>Acq Time</b>	20:02
<b>ClientID</b>	NA	<b>Inj Vol</b>	20

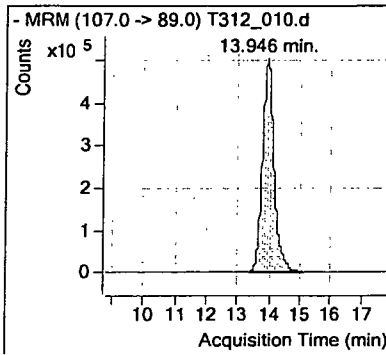
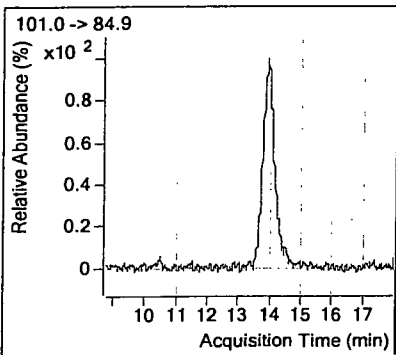
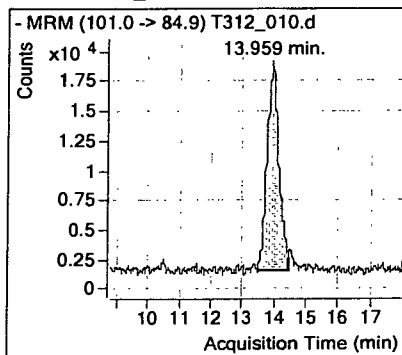


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.942	1472839	12977621
Perchlorate_102	PER_IS_108	13.959	440675	12977621

## Perchlorate\_100



## Perchlorate\_102





## SECOND SOURCE CALIBRATION VERIFICATION SUMMARY FORM

**Lab Name:** APPL Inc.

**Detector ID:** Agilent 6460 Triple Quad LC/MS     **DATA FILE ID:** T312\_011.d

				Date (s) of From:03/12/15 Analysis To:03/12/15 Time (s) of From:17:33 Analysis To:19:44		Date of Analysis: 03/12/15 Time of Analysis: 20:21 Standard Id: PER SS (Standard) 0.002 ug/ml		
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.50	13.40	13.60	1.270255	14.01	1.358201	N	6.9
Perchlorate_85	13.54	13.44	13.64	0.391605	14.00	0.404148	N	3.2

FILE ID : TQCK1211.RFB



Data File ID: T312\_011.d

Date Injected : 03/12/15

Time Injected : 20:21

Sample ID : PER\_SS 0.002 ug/ml 11/11/14

Client ID : NA

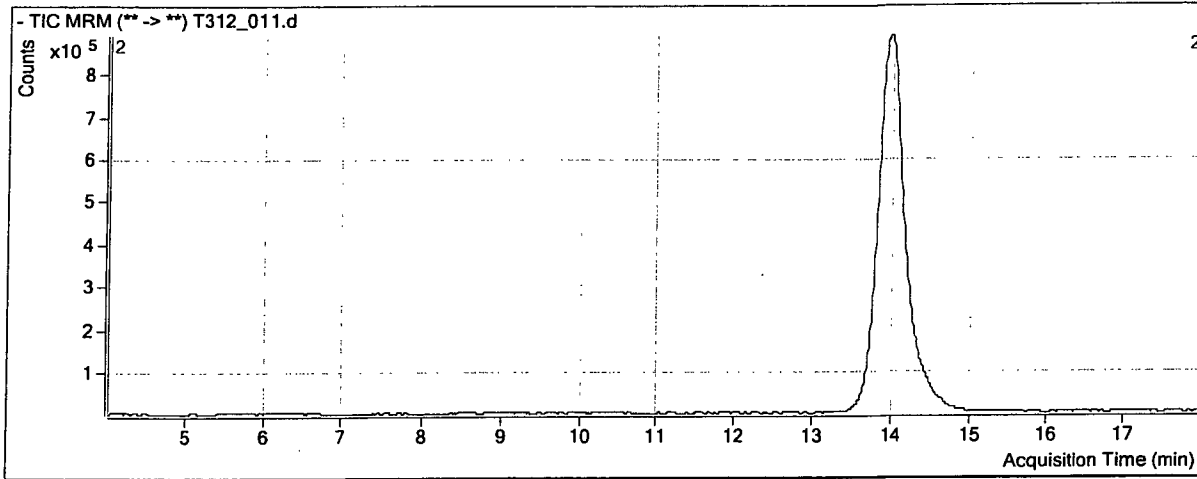
Retention Time	Area Count Response	Compound ID Product Ion
13.976	13747369	PER_IS_89
14.014	7468678	Perchlorate_83
14.000	2222387	Perchlorate_85



# Quantitative Analysis Sample Report

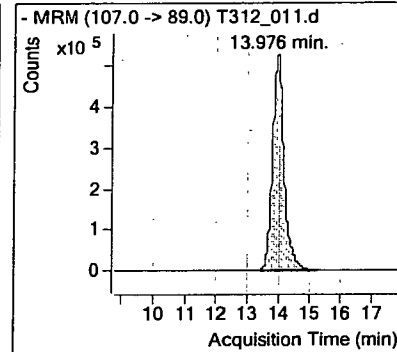
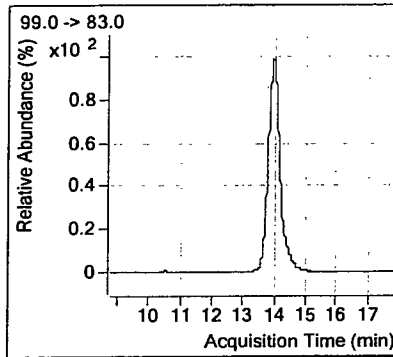
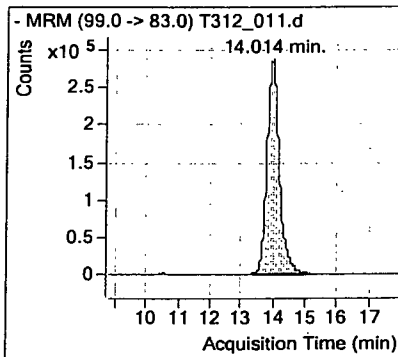
Batch Data Path D:\MassHunter\Data\150312\QuantResults\150312\_A1\_MI.batch.bin

Instrument	LCMS QQQ	Operator	ba
Data File	T312_011.d	Sample Name	PER_SS 0.002 ug/ml 11/11/14
Sample Type	Sample	Acq Date	03/12/15
Acq Method	6460_ESI_PER_N_NEWER_K_COLUMN.m	Acq Time	20:21
ClientID	NA	Inj Vol	20

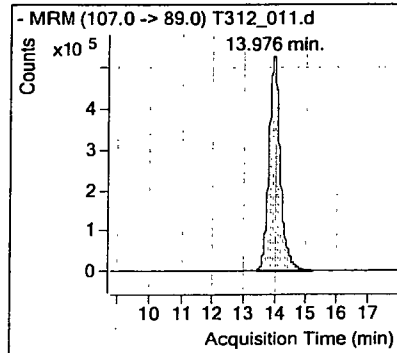
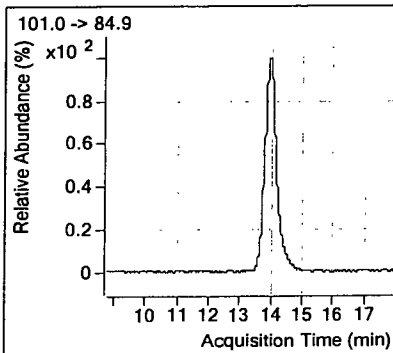
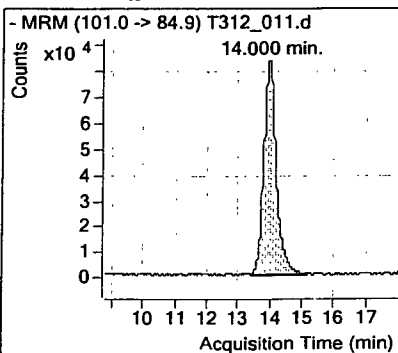


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.014	7468678	13747369
Perchlorate_102	PER_IS_108	14.000	2222387	13747369

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T312\_013.d

				Date (s) of From:03/12/15 Analysis To:03/12/15 Time (s) of From:17:33 Analysis To:20:40		Date of Analysis: 03/12/15 Time of Analysis: 20:58 Standard Id: PER CCV 1 (Standard) 0.0004ug/ml		
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.50	13.40	13.60	1.270255	14.10	1.285147	N	1.2
Perchlorate_85	13.54	13.44	13.64	0.391605	14.14	0.416428	N	6.3

FILE ID : TQCK1213.RFB



Data File ID: T312\_013.d

Date Injected : 03/12/15

Time Injected : 20:58

Sample ID : PER\_CCV\_1 0.0004 ug/ml 11/11/14

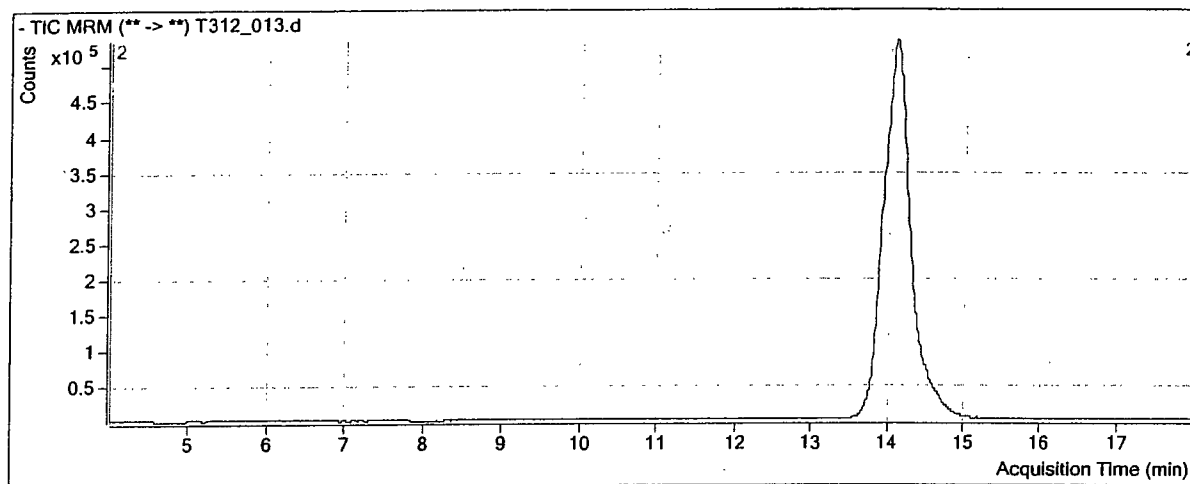
Client ID : NA

Retention Time	Area Count Response	Compound ID Product Ion
14.109	12323795	PER_IS_89
14.105	1267031	Perchlorate_83
14.143	410558	Perchlorate_85



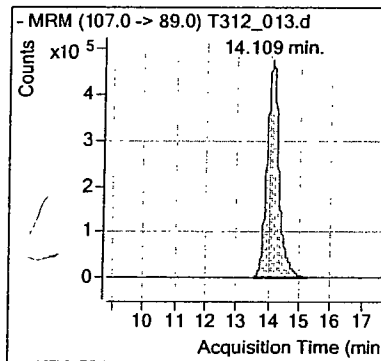
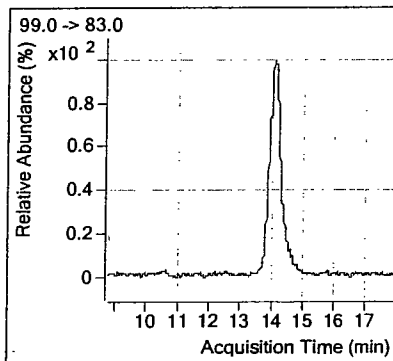
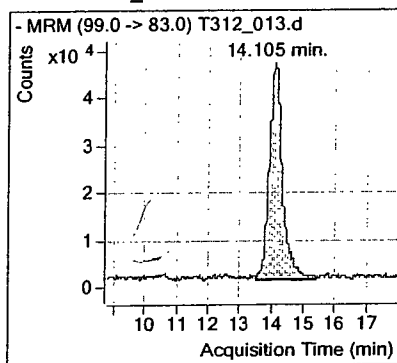
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150312\QuantResults\150312\_A1\_ML.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T312\_013.d **Sample Name** PER\_CCV\_1 0.0004 ug/ml 11/11/14  
**Sample Type** Sample **Acq Date** 03/12/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K'\_COLUMN.m **Acq Time** 20:58  
**ClientID** NA **Inj Vol** 20

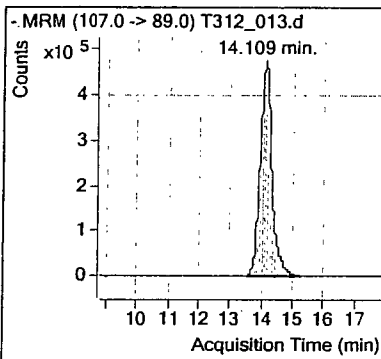
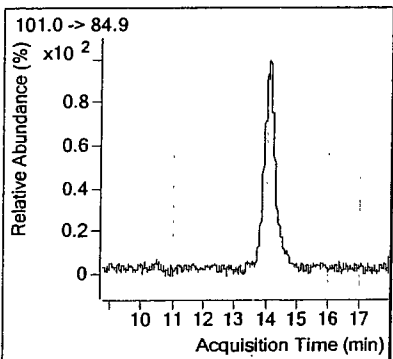
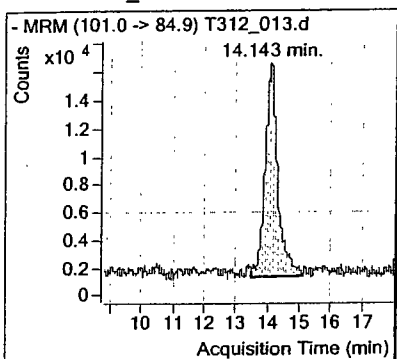


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.105	1267031	12323795
Perchlorate_102	PER_IS_108	14.143	410558	12323795

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T312\_014.d

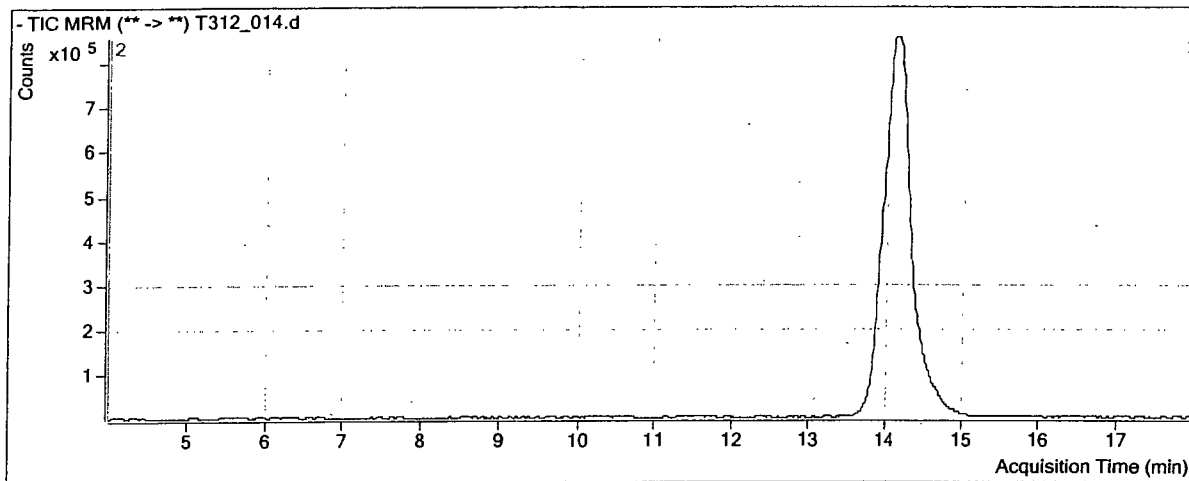
Date (s) of From:03/12/15 Analysis To:03/12/15 Time (s) of From:17:33 Analysis To:20:40				Date of Analysis: 03/12/15 Time of Analysis: 21:17 Standard Id: PER CCV_1 (Standard) 0.002 ug/ml				
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.50	13.40	13.60	1.270255	14.15	1.271875	N	0.1
Perchlorate_85	13.54	13.44	13.64	0.391605	14.12	0.385509	N	1.6

FILE ID : TQCK1214.RFB



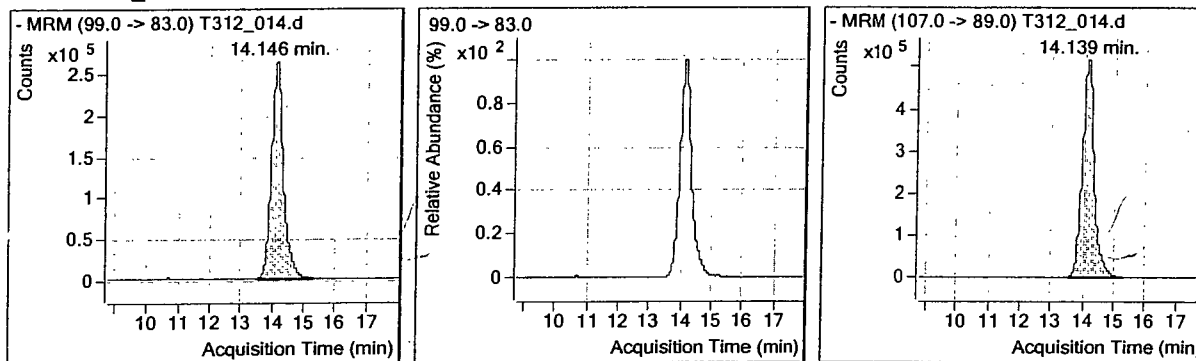
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150312\QuantResults\150312\_A1\_MI.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T312\_014.d **Sample Name** PER\_CCV\_1 0.002 ug/ml 11/11/14  
**Sample Type** Sample **Acq Date** 03/12/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K'\_COLUMN.m **Acq Time** 21:17  
**ClientID** NA **Inj Vol** 20

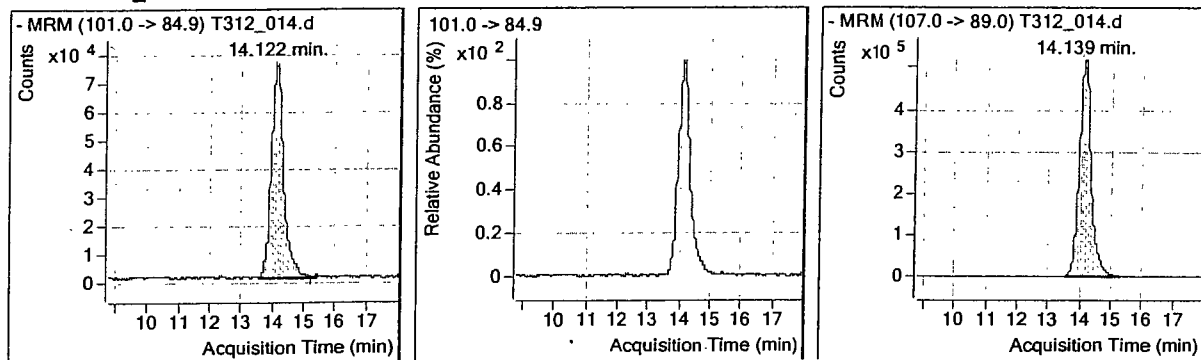


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.146	6907110	13576634
Perchlorate_102	PER_IS_108	14.122	2093567	13576634

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T505\_006.d

				Date (s) of From:03/12/15 Analysis To:05/05/15 Time (s) of From:17:52 Analysis To:20:07		Date of Analysis: 05/05/15 Time of Analysis: 20:25 Standard Id: PER CCV (Standard) 0.0004ug/ml		
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.54	1.413209	N	11.3
Perchlorate_85	13.70	13.60	13.80	0.391605	13.51	0.467561	N	19.4

FILE ID : TQCK0506.RFB



Data File ID: T505\_006.d

Date Injected : 05/05/15

Time Injected : 20:25

Sample ID : PER\_CCV 0.0004 ug/ml 04/20/15

Client ID : NA

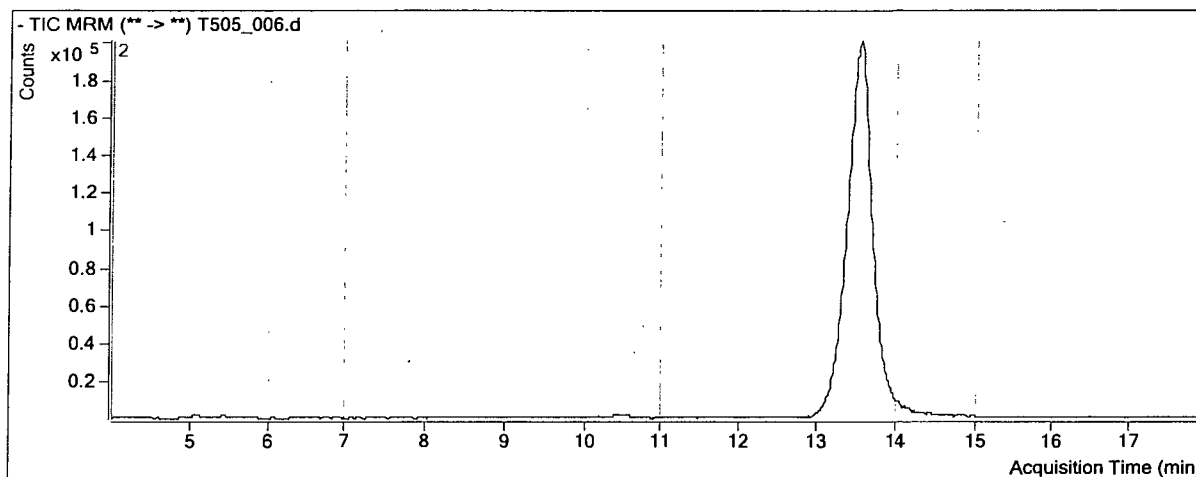
Retention Time	Area Count Response	Compound_ID Product Ion
13.548	3976296	PER_IS_89
13.545	449547	Perchlorate_83
13.511	* 148733	Perchlorate_85

\* MANUAL INTEGRAION



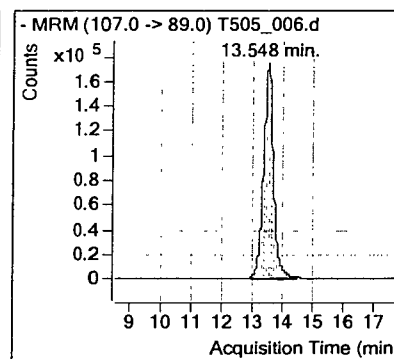
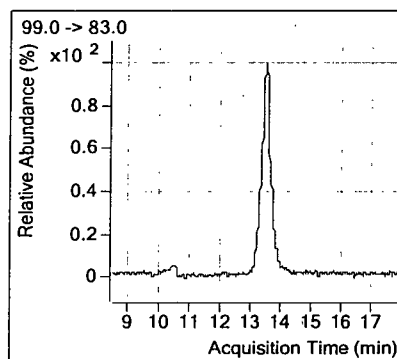
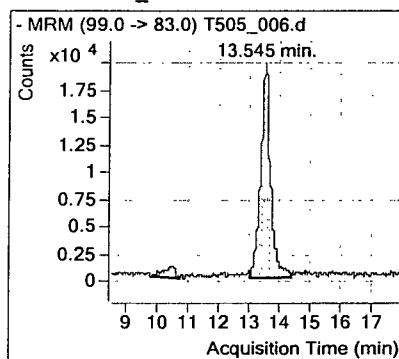
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150505\QuantResults\150505\_A1\_MI.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T505\_006.d **Sample Name** PER\_CCV 0.0004 ug/ml 04/20/15  
**Sample Type** Sample **Acq Date** 05/05/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K\_COLUMN.m **Acq Time** 20:25  
**ClientID** NA **Inj Vol** 20

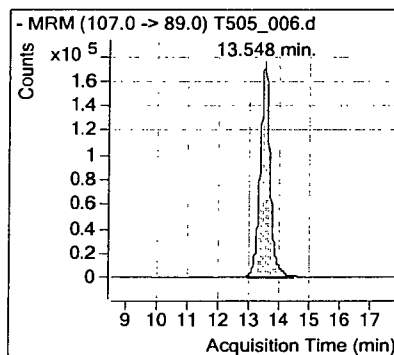
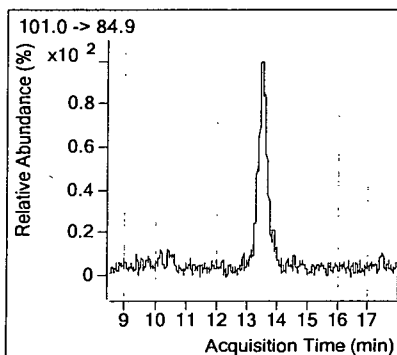
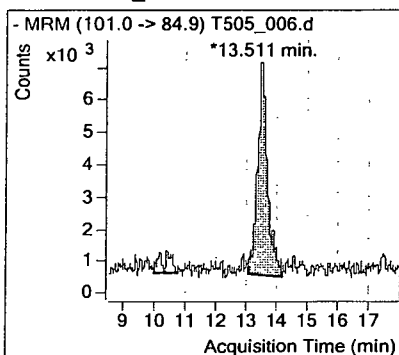


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.545	449547	3976296
Perchlorate_102	PER_IS_108	* 13.511	148733	3976296 * MANUAL INT

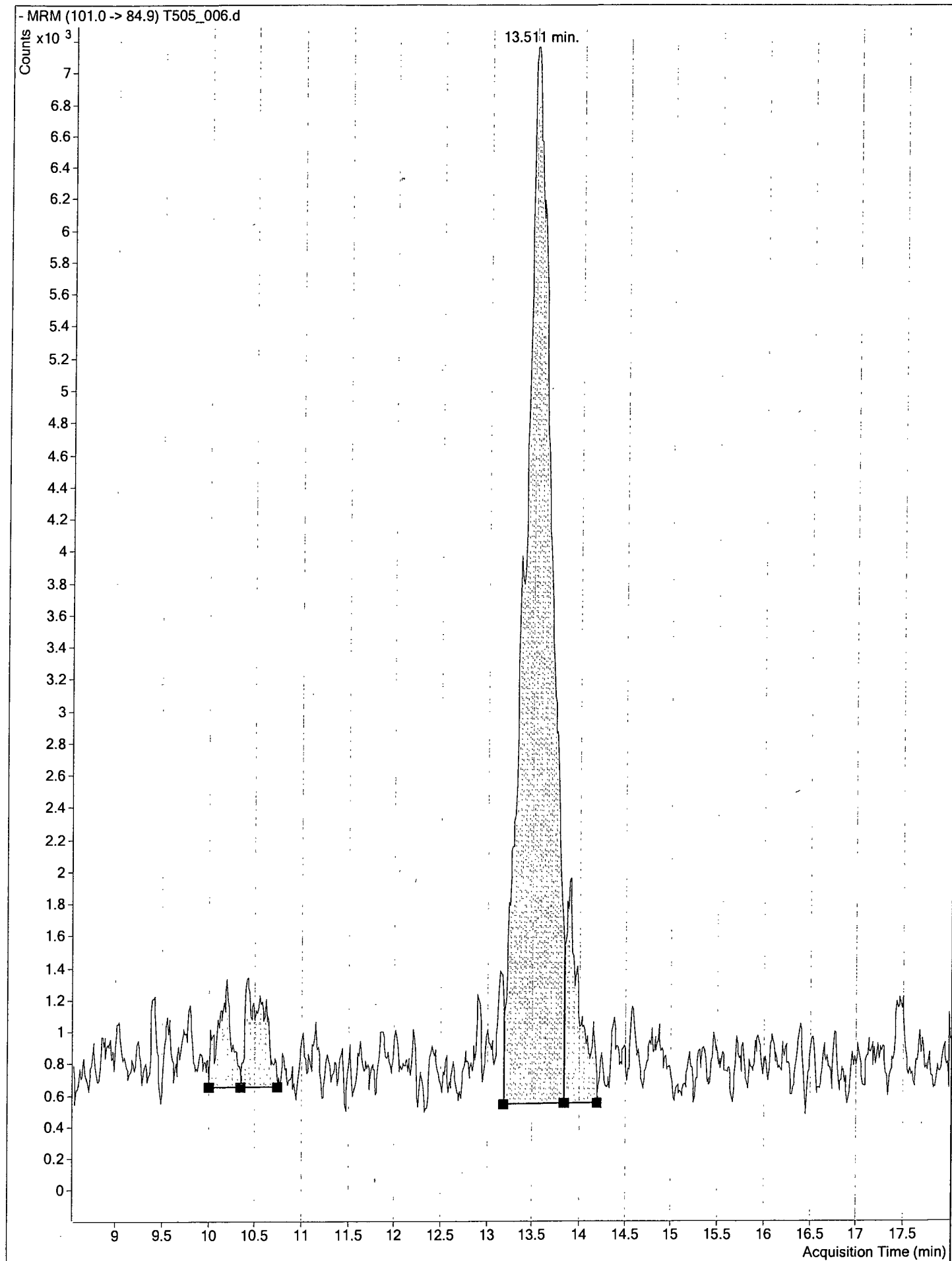
## Perchlorate\_100



## Perchlorate\_102

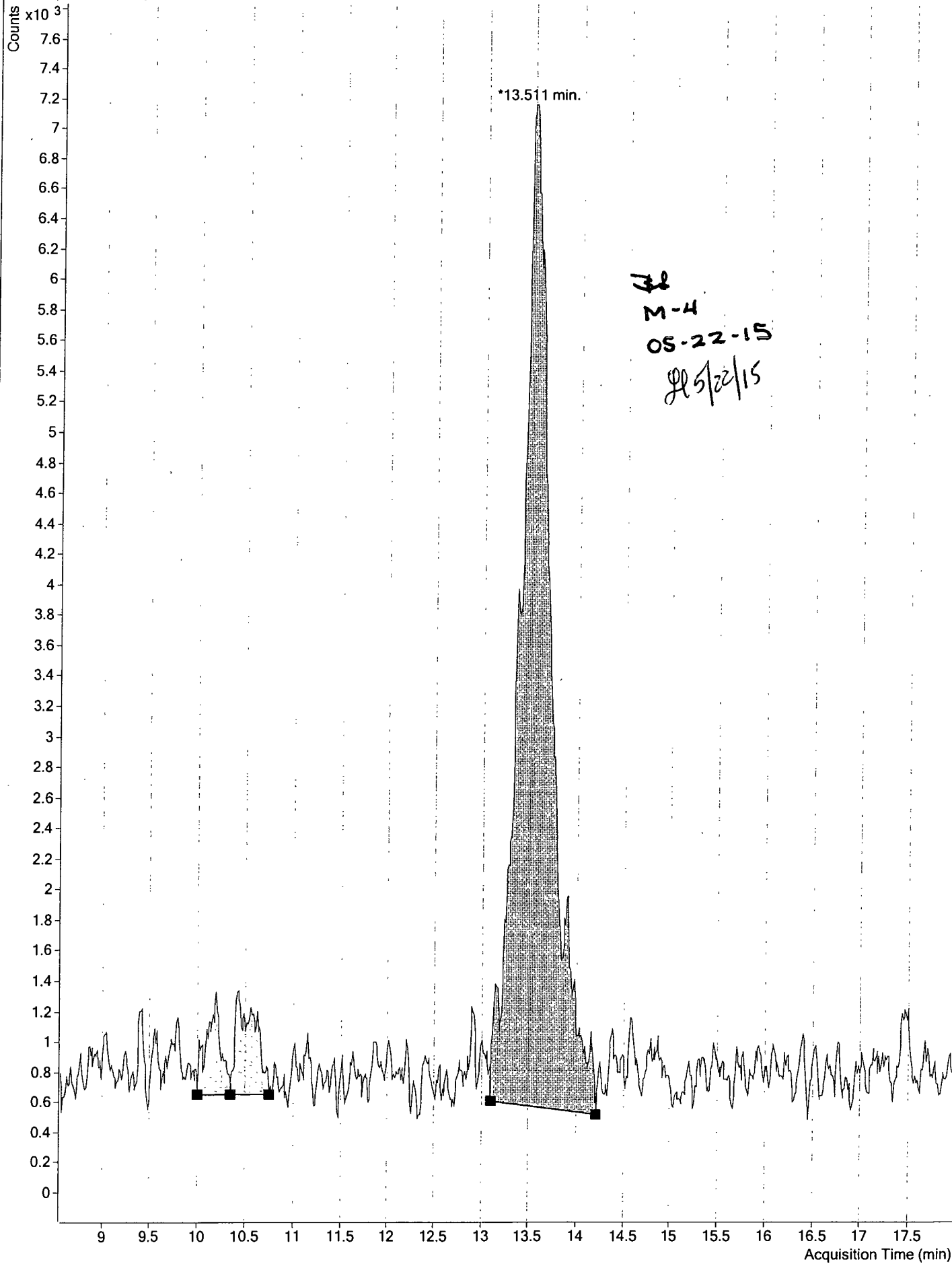








- MRM (101.0 -> 84.9) T505\_006.d





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T505\_007.d

Date (s) of From:03/12/15 Analysis To:05/05/15 Time (s) of From:17:52 Analysis To:20:07				Date of Analysis: 05/05/15 Time of Analysis: 20:44 Standard Id: PER CCV (Standard) 0.002 ug/ml				
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.75	1.175909	N	7.4
Perchlorate_85	13.70	13.60	13.80	0.391605	13.74	0.369905	N	5.5

FILE ID : TQCK0507.RFB



Data File ID: T505\_007.d

Date Injected : 05/05/15

Time Injected : 20:44

Sample ID : PER\_CCV 0.002 ug/ml 04/20/15

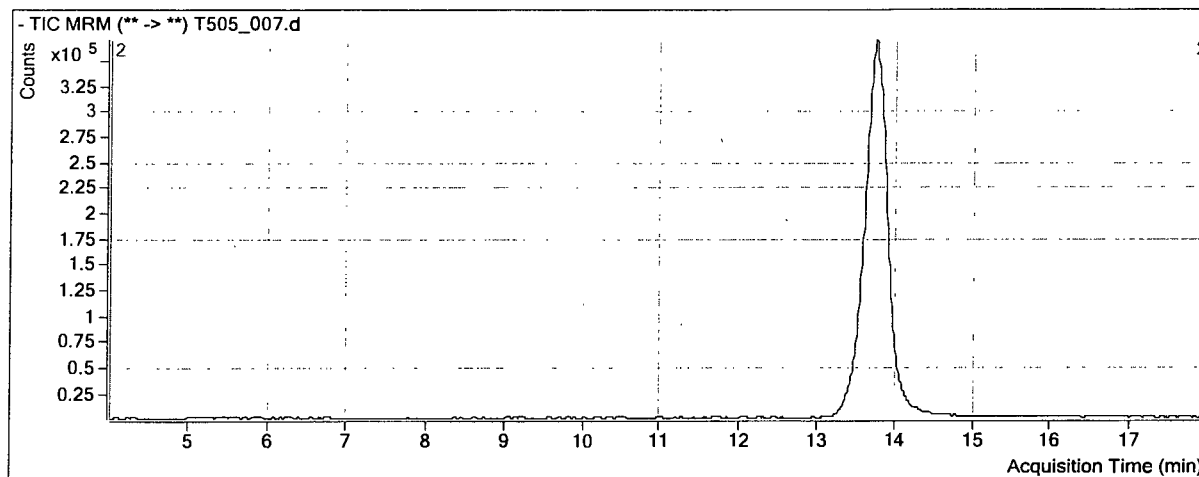
Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.742	4881776	PER_IS_89
13.749	2296209	Perchlorate_83
13.745	722317	Perchlorate_85



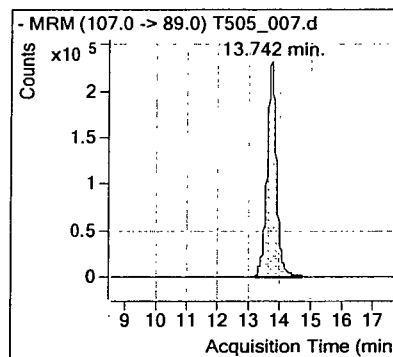
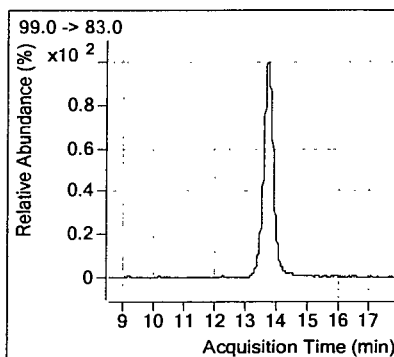
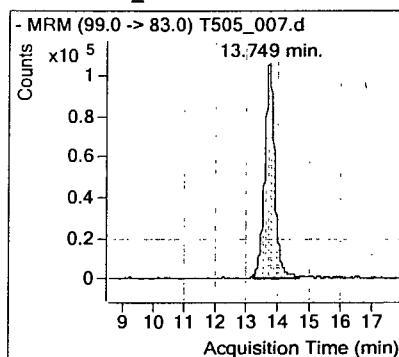
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150505\QuantResults\150505\_A1\_ML.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T505\_007.d **Sample Name** PER\_CCV 0.002 ug/ml 04/20/15  
**Sample Type** Sample **Acq Date** 05/05/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K'\_COLUMN.m **Acq Time** 20:44  
**ClientID** NA **Inj Vol** 20

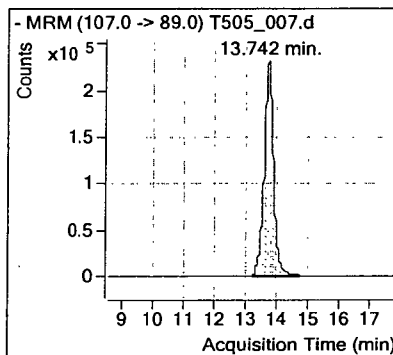
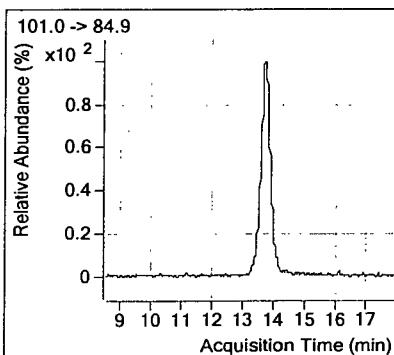
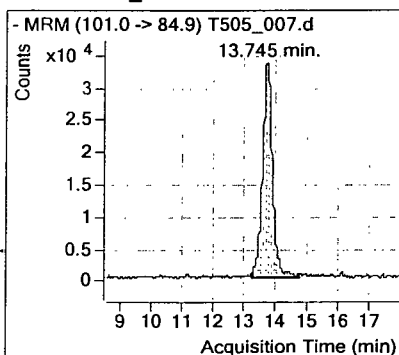


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.749	2296209	4881776
Perchlorate_102	PER_IS_108	13.745	722317	4881776

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T505\_018.d

Date (s) of From:03/12/15 Analysis To:05/05/15 Time (s) of From:17:52 Analysis To:23:31				Date of Analysis: 05/06/15 Time of Analysis: 0:09 Standard Id: PER CCV (Standard) 0.0004ug/ml				
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.96	1.366145	N	7.5
Perchlorate_85	13.70	13.60	13.80	0.391605	13.98	0.487233	N	24.4

FILE ID : TQCK0518.RFB



Data File ID: T505\_018.d

Date Injected : 05/06/15

Time Injected : 0:09

Sample ID : PER\_CCV 0.0004 ug/ml 04/20/15

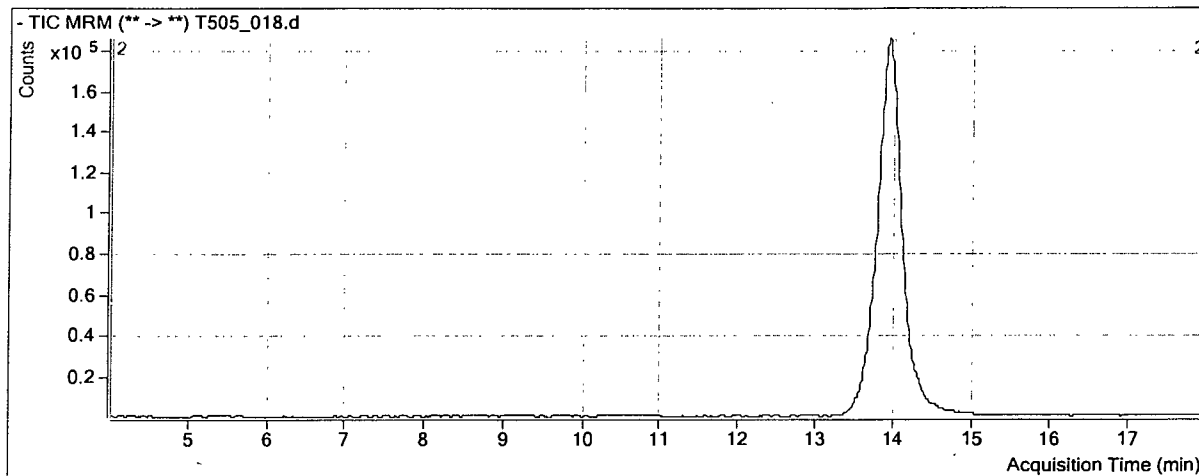
Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.956	3749621	PER_IS_89
13.963	409802	Perchlorate_83
13.98	146155	Perchlorate_85



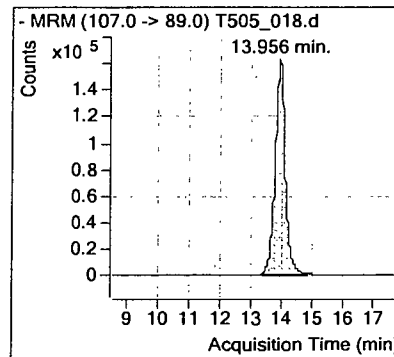
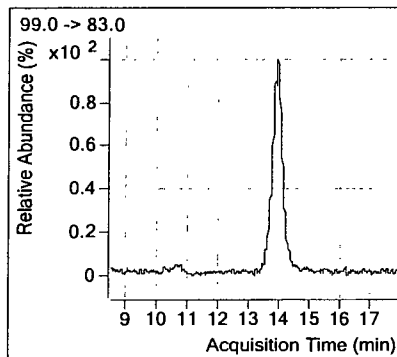
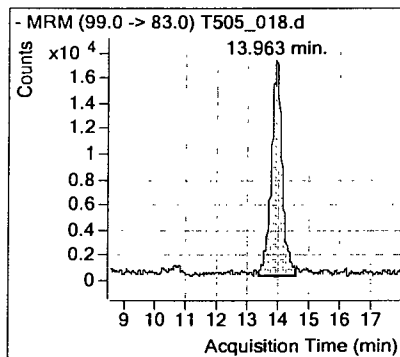
# Quantitative Analysis Sample Report

Batch Data Path D:\MassHunter\Data\150505\QuantResults\150505\_A1\_ML.batch.bin  
Instrument LCMS QQQ Operator ba  
Data File T505\_018.d Sample Name PER\_CCV 0.0004 ug/ml 04/20/15  
Sample Type Sample Acq Date 05/06/15  
Acq Method 6460\_ESI\_PER\_N\_NEWER\_K'\_COLUMN.m Acq Time 0:09  
ClientID NA Inj Vol 20

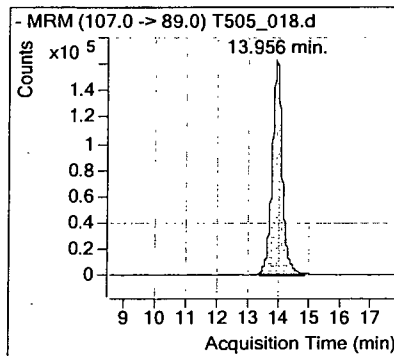
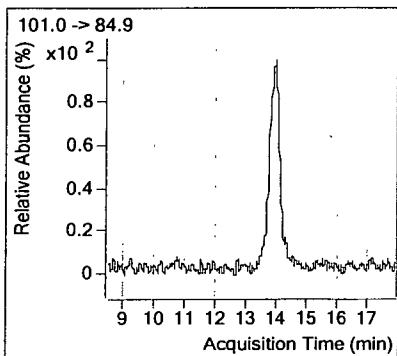
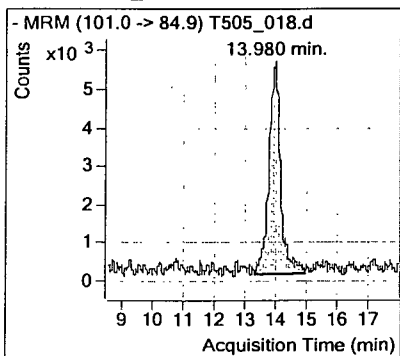


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.963	409802	3749621
Perchlorate_102	PER_IS_108	13.980	146155	3749621

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T505\_019.d

		Date (s) of From:03/12/15 Analysis To:05/05/15 Time (s) of From:17:52 Analysis To:23:31			Date of Analysis: 05/06/15 Time of Analysis: 0:27 Standard Id: PER CCV (Standard) 0.002 ug/ml			
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	14.18	1.182807	N	6.9
Perchlorate_85	13.70	13.60	13.80	0.391605	14.18	0.364357	N	7.0

FILE ID : TQCK0519.RFB



Data File ID: T505\_019.d

Date Injected : 05/06/15

Time Injected : 0:27

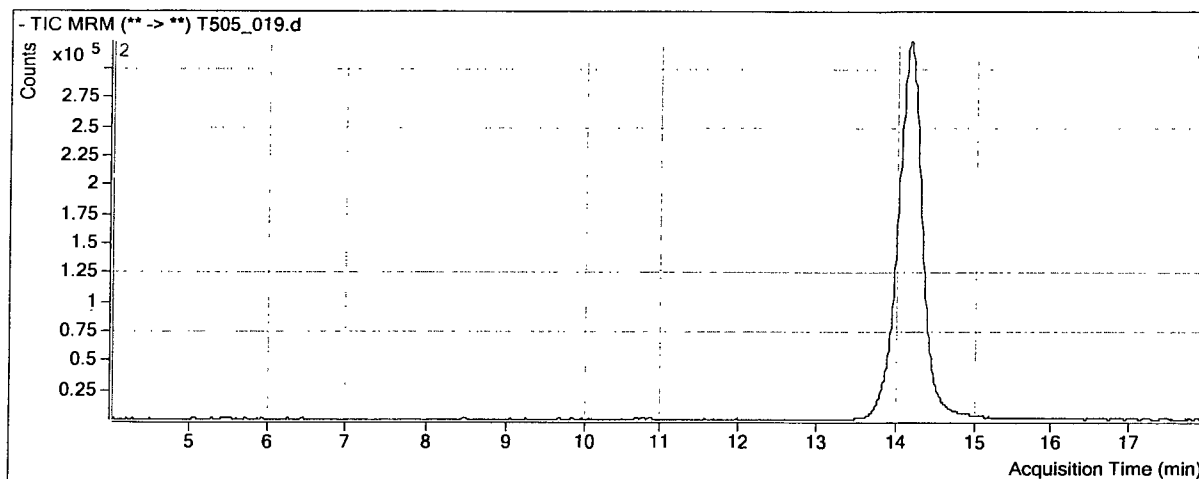
Sample ID : PER\_CCV 0.002 ug/ml 04/20/15

Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
14.16	4388671	PER_IS_89
14.177	2076381	Perchlorate_83
14.183	639618	Perchlorate_85

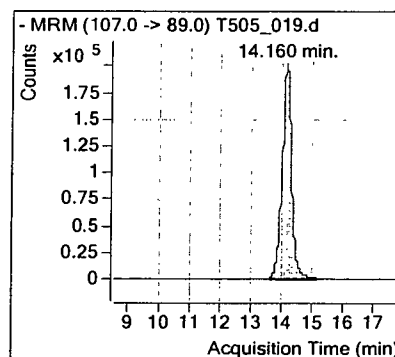
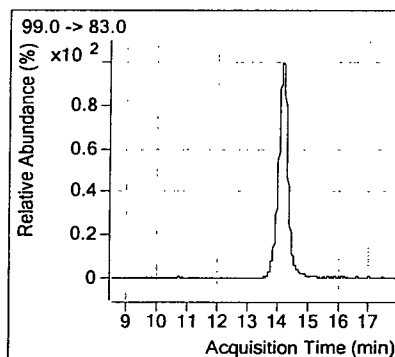
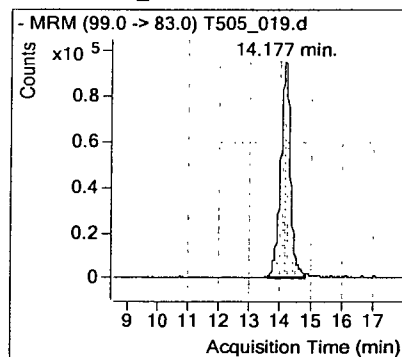


<b>Batch Data Path</b> D:\MassHunter\Data\150505\QuantResults\150505_A1_MI.batch.bin	
<b>Instrument</b> LCMS QQQ	<b>Operator</b> ba
<b>Data File</b> T505_019.d	<b>Sample Name</b> PER_CCV 0.002 ug/ml 04/20/15
<b>Sample Type</b> Sample	<b>Acq Date</b> 05/06/15
<b>Acq Method</b> 6460_ESI_PER_N_NEWER_K' COLUMN.m	<b>Acq Time</b> 0:27
<b>ClientID</b> NA	<b>Inj Vol</b> 20

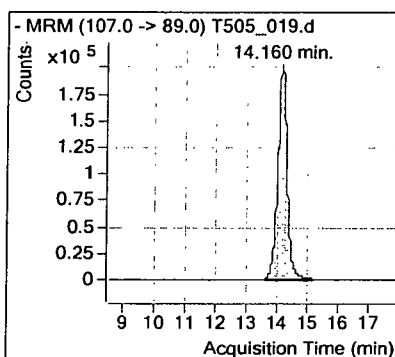
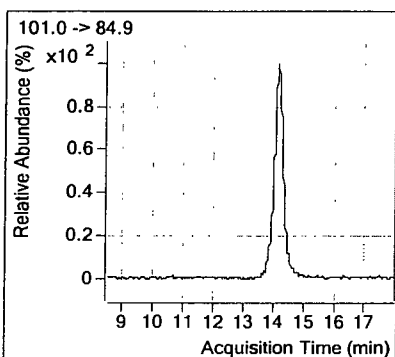
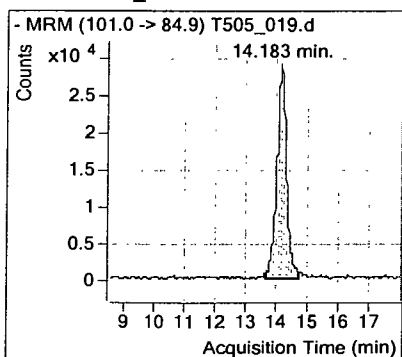


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.177	2076381	4388671
Perchlorate_102	PER_IS_108	14.183	639618	4388671

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T506\_002.d

<div>Date (s) of From:03/12/15 Analysis To:05/06/15 Time (s) of From:17:52 Analysis To:16:11</div>				<div>Date of Analysis: 05/06/15 Time of Analysis: 16:29 Standard Id: PER CCV (Standard) 0.0004ug/ml</div>				
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	14.19	1.388758	N	9.3
Perchlorate_85	13.70	13.60	13.80	0.391605	14.14	0.450599	N	15.1

FILE ID : TQCK0602.RFB



Data File ID: T506\_002.d

Date Injected : 05/06/15

Time Injected : 16:29

Sample ID : PER\_CCV 0.0004 ug/ml 04/20/15

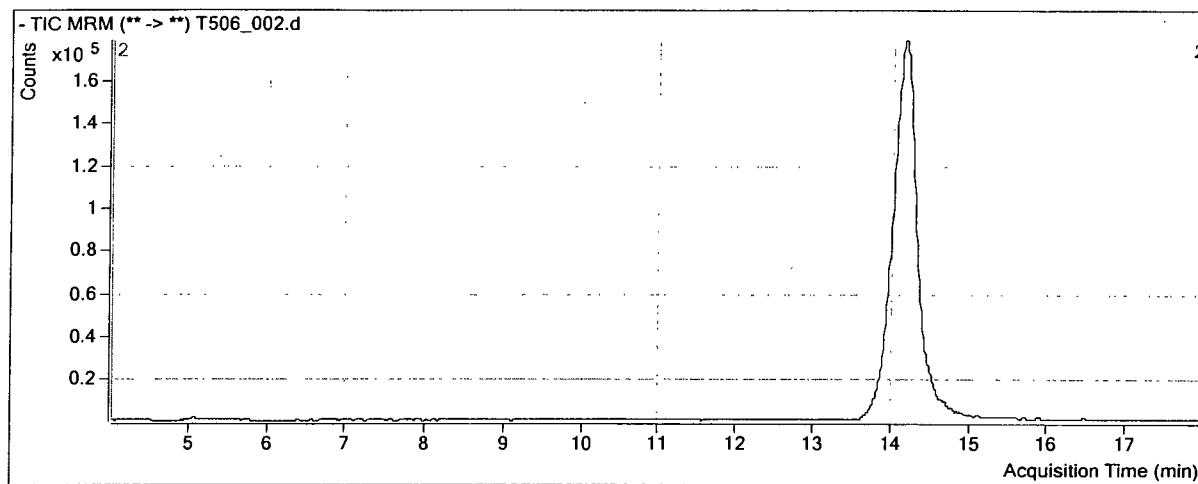
Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
14.17	3464003	PER_IS_89
14.187	384853	Perchlorate_83
14.143	124870	Perchlorate_85



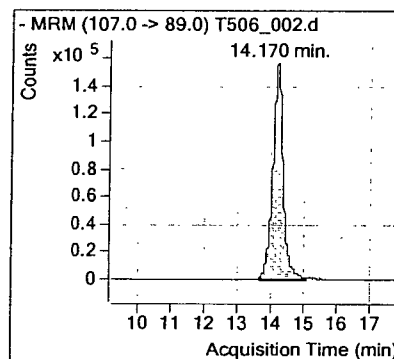
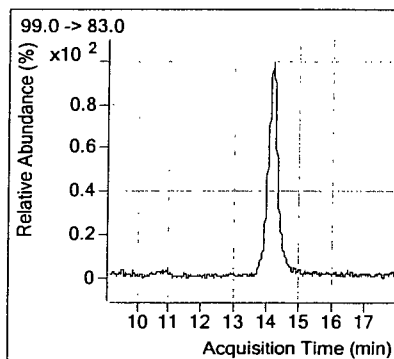
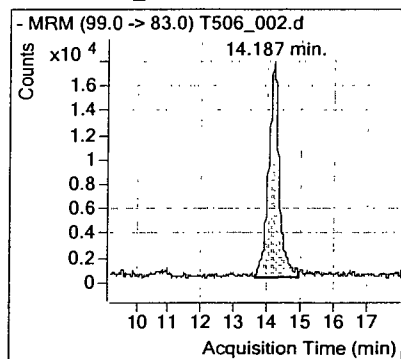
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150506\QuantResults\150506\_A1\_MI.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T506\_002.d **Sample Name** PER\_CCV 0.0004 ug/ml 04/20/15  
**Sample Type** Sample **Acq Date** 05/06/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K\_COLUMN.m **Acq Time** 16:29  
**ClientID** NA **Inj Vol** 20

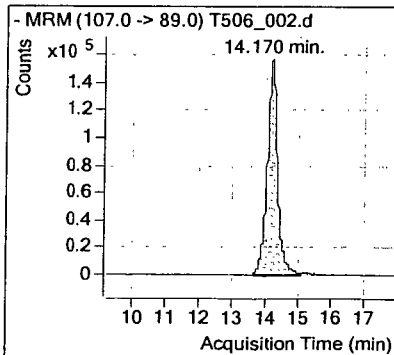
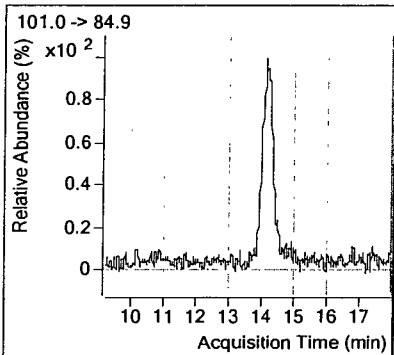
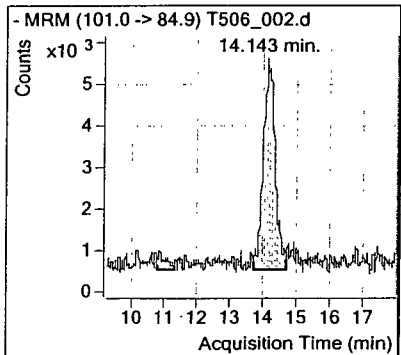


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.187	384853	3464003
Perchlorate_102	PER_IS_108	14.143	124870	3464003

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T506\_003.d

		Date (s) of From:03/12/15 Analysis To:05/06/15 Time (s) of From:17:52 Analysis To:16:11			Date of Analysis: 05/06/15 Time of Analysis: 16:48 Standard Id: PER CCV (Standard) 0.002 ug/ml			
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	14.16	1.177536	N	7.3
Perchlorate_85	13.70	13.60	13.80	0.391605	14.16	0.368419	N	5.9

FILE ID : TQCK0603.RFB



Data File ID: T506\_003.d

Date Injected : 05/06/15

Time Injected : 16:48

Sample ID : PER\_CCV 0.002 ug/ml 04/20/15

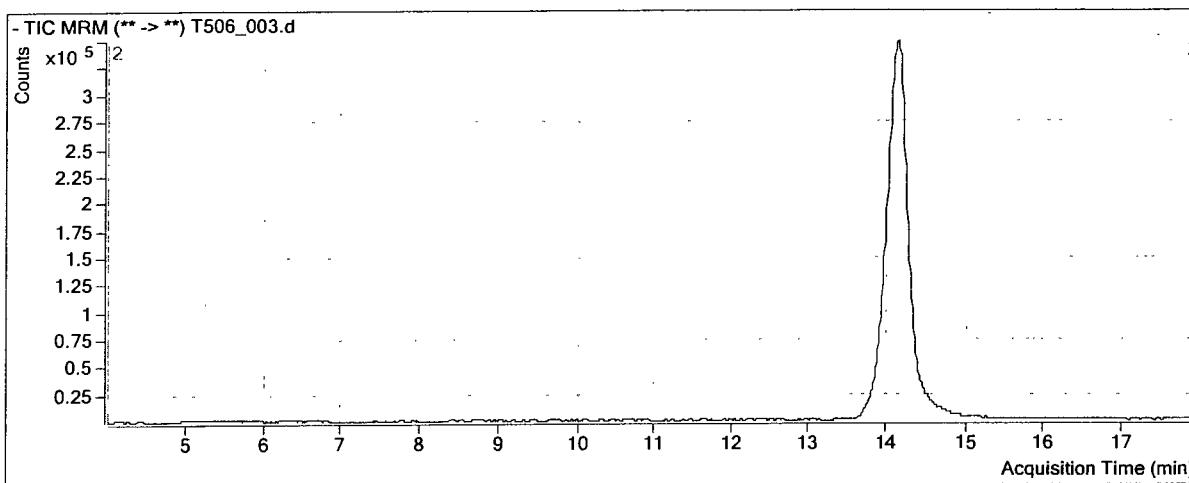
Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
14.139	4259453	PER_IS_89
14.156	2006264	Perchlorate_83
14.163	627706	Perchlorate_85



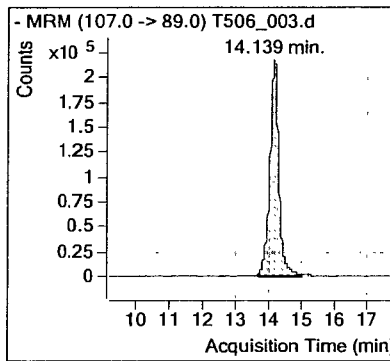
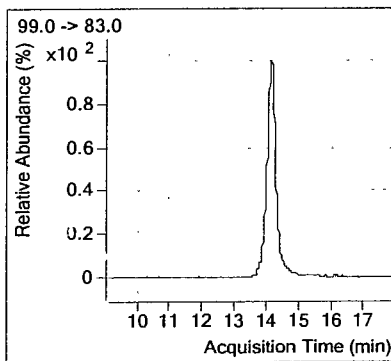
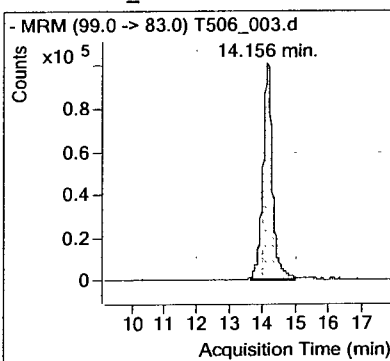
# Quantitative Analysis Sample Report

<b>Batch Data Path</b>	D:\MassHunter\Data\150506\QuantResults\150506_A1_MI.batch.bin		
<b>Instrument</b>	LCMS QQQ	<b>Operator</b>	ba
<b>Data File</b>	T506_003.d	<b>Sample Name</b>	PER_CCV 0.002 ug/ml 04/20/15
<b>Sample Type</b>	Sample	<b>Acq_Date</b>	05/06/15
<b>Acq Method</b>	6460_ESI_PER_N_NEWER_K_COLUMN.m	<b>Acq Time</b>	16:48
<b>ClientID</b>	NA	<b>Inj Vol</b>	20

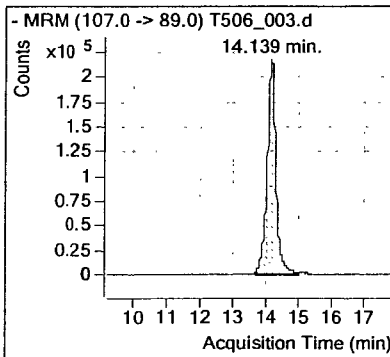
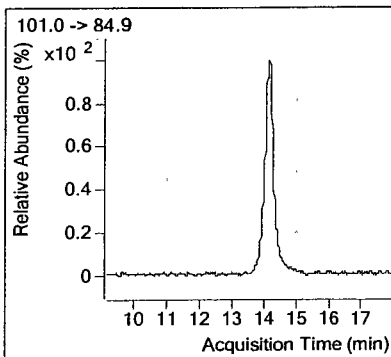
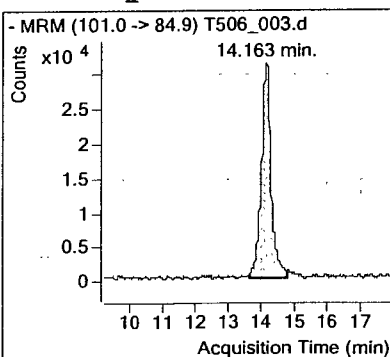


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	14.156	2006264	4259453
Perchlorate_102	PER_IS_108	14.163	627706	4259453

## Perchlorate\_100



## Perchlorate\_102





## CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS      DATA FILE ID: T506\_057.d

				Date (s) of From:03/12/15 Analysis To:05/07/15 Time (s) of From:17:52 Analysis To:10:03		Date of Analysis: 05/07/15 Time of Analysis: 10:41 Standard Id: PER CCV (Standard) 0.0004ug/ml		
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.74	1.318805	N	3.8
Perchlorate_85	13.70	13.60	13.80	0.391605	13.73	0.460711	N	17.6

FILE ID : TQCK0657.RFB



Data File ID: T506\_057.d

Date Injected : 05/07/15

Time Injected : 10:41

Sample ID : PER\_CCV 0.0004 ug/ml 04/20/15

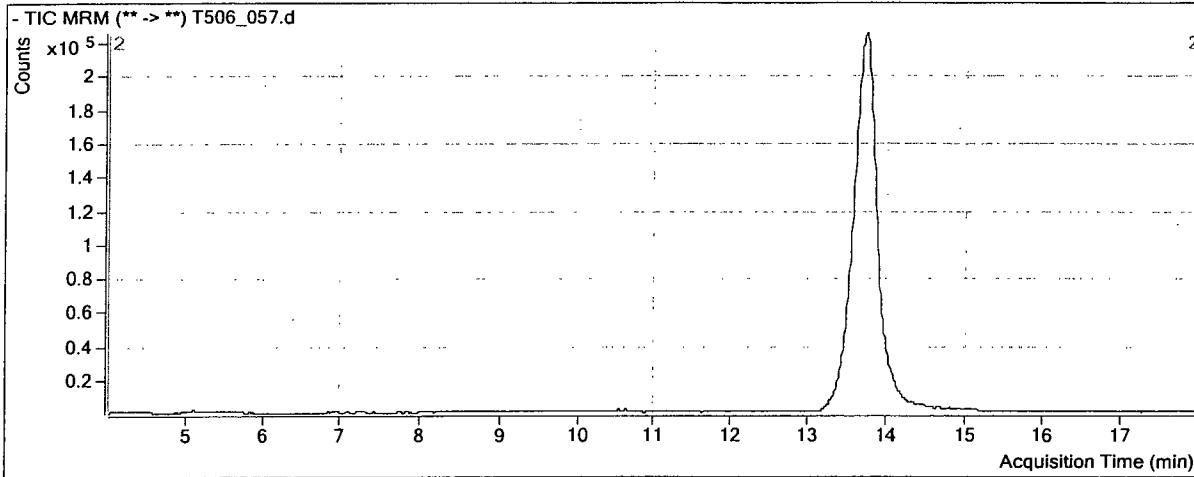
Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.721	4358642	PER_IS_89
13.738	459856	Perchlorate_83
13.725	160646	Perchlorate_85



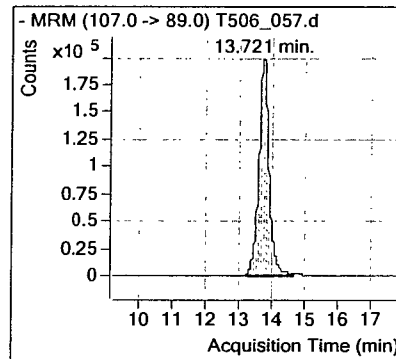
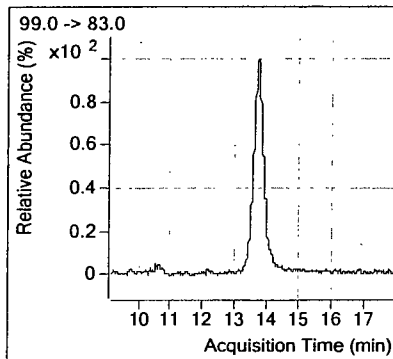
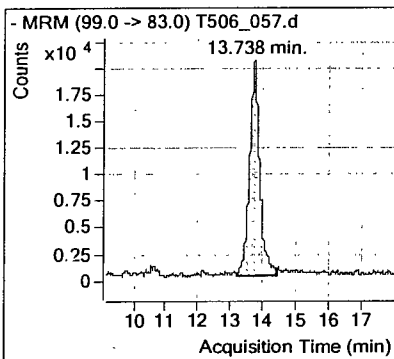
# Quantitative Analysis Sample Report

**Batch Data Path** D:\MassHunter\Data\150506\QuantResults\150506\_A1\_MI.batch.bin  
**Instrument** LCMS QQQ **Operator** ba  
**Data File** T506\_057.d **Sample Name** PER\_CCV 0.0004 ug/ml 04/20/15  
**Sample Type** Sample **Acq Date** 05/07/15  
**Acq Method** 6460\_ESI\_PER\_N\_NEWER\_K\_COLUMN.m **Acq Time** 10:41  
**ClientID** NA **Inj Vol** 20

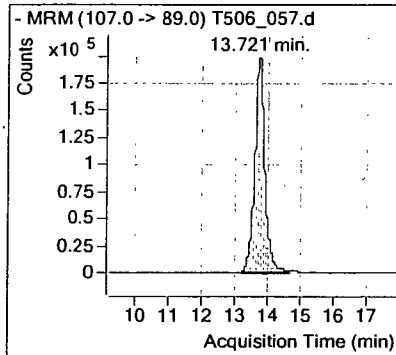
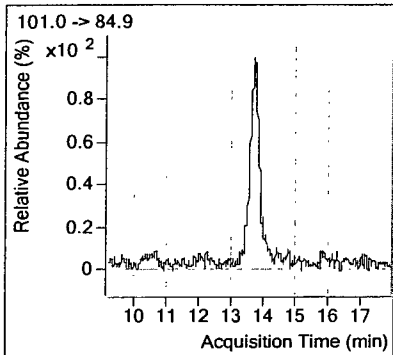
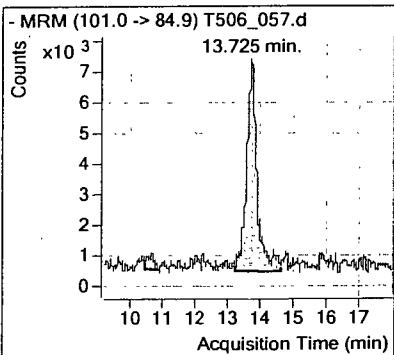


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.738	459856	4358642
Perchlorate_102	PER_IS_108	13.725	160646	4358642

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T506\_058.d

				Date (s) of From:03/12/15 Analysis To:05/07/15 Time (s) of From:17:52 Analysis To:10:03	Date of Analysis: 05/07/15 Time of Analysis: 11:00 Standard Id: PER CCV (Standard) 0.002 ug/ml			
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.89	1.175139	N	7.5
Perchlorate_85	13.70	13.60	13.80	0.391605	13.89	0.348164	N	11.1

FILE ID : TQCK0658.RFB



Data File ID: T506\_058.d

Date Injected : 05/07/15

Time Injected : 11:00

Sample ID : PER\_CCV 0.002 ug/ml 04/20/15

Client ID : NA

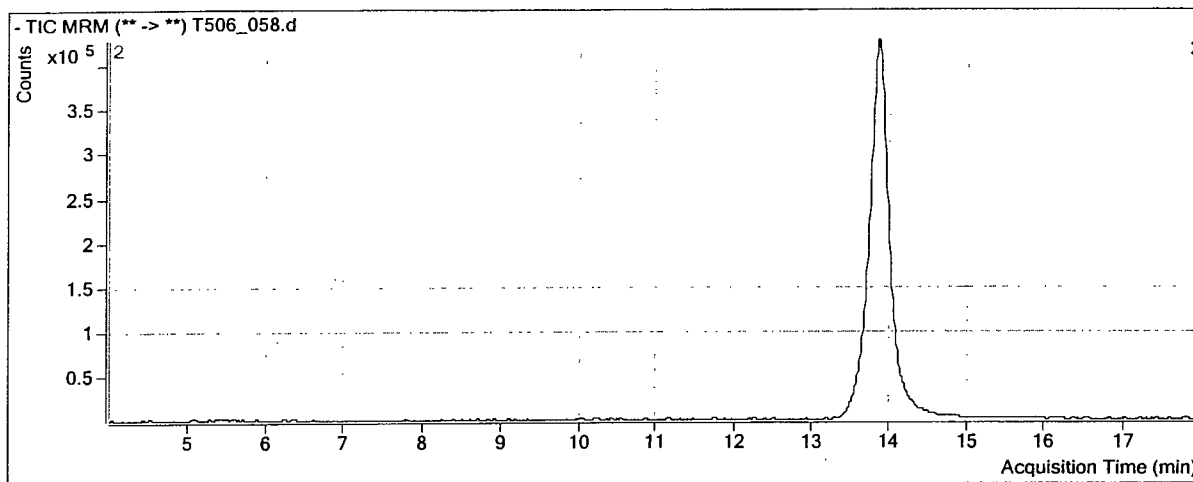
Retention Time	Area Count Response	Compound_ID Product Ion
13.864	5207137	PER_IS_89
13.891	2447643	Perchlorate_83
13.888	725175	Perchlorate_85



# Quantitative Analysis Sample Report

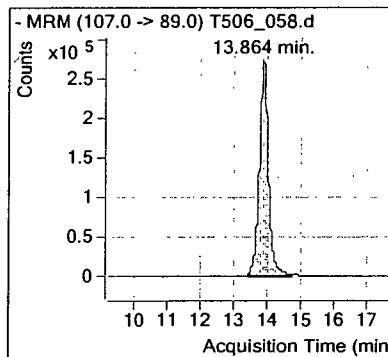
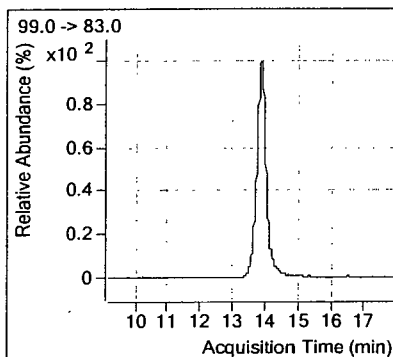
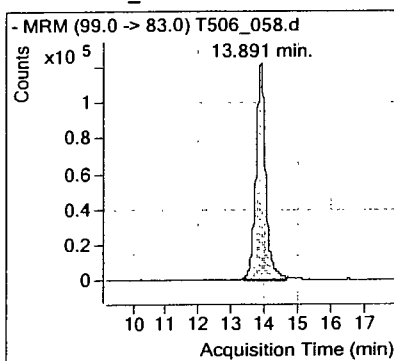
Batch Data Path D:\MassHunter\Data\150506\QuantResults\150506\_A1\_MI.batch.bin

Instrument	LCMS QQQ	Operator	ba
Data File	T506_058.d	Sample Name	PER_CCV 0.002 ug/ml 04/20/15
Sample Type	Sample	Acq Date	05/07/15
Acq Method	6460_ESI_PER_N_NEWER_K_COLUMN.m	Acq Time	11:00
ClientID	NA	Inj Vol	20

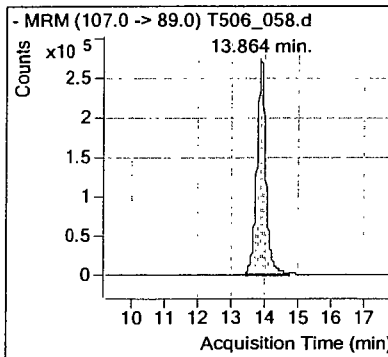
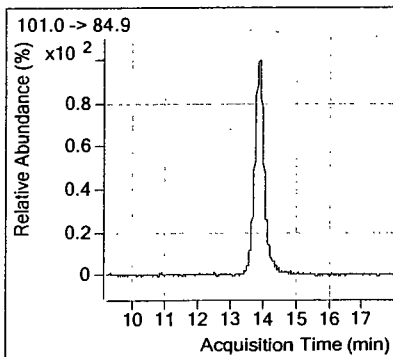
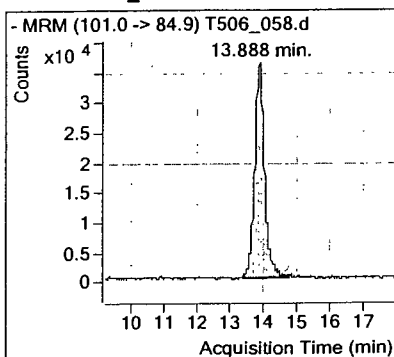


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.891	2447643	5207137
Perchlorate_102	PER_IS_108	13.888	725175	5207137

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T506\_070.d

				Date (s) of From:03/12/15 Analysis To:05/07/15 Time (s) of From:17:52 Analysis To:14:14		Date of Analysis: 05/07/15 Time of Analysis: 14:51 Standard Id: PER CCV (Standard) 0.0004ug/ml		
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.47	1.367041	N	7.6
Perchlorate_85	13.70	13.60	13.80	0.391605	13.48	0.431768	N	10.3

FILE ID : TQCK0670.RFB



Data File ID: T506\_070.d

Date Injected : 05/07/15

Time Injected : 14:51

Sample ID : PER\_CCV 0.0004 ug/ml 04/20/15

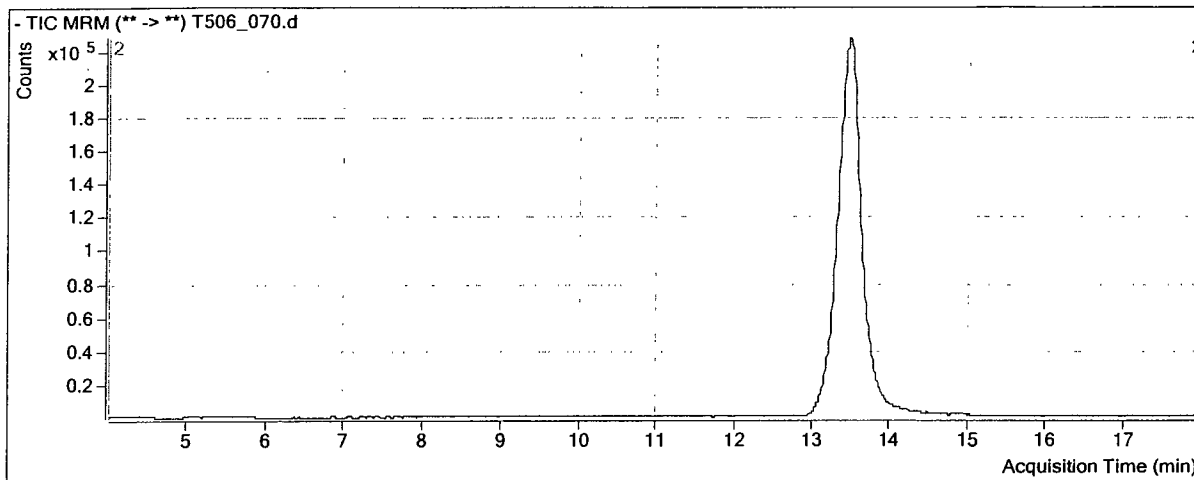
Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.467	4367215	PER_IS_89
13.474	477613	Perchlorate_83
13.48	150850	Perchlorate_85



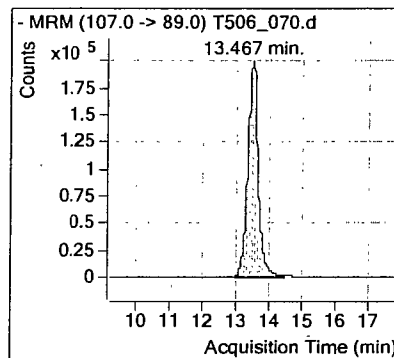
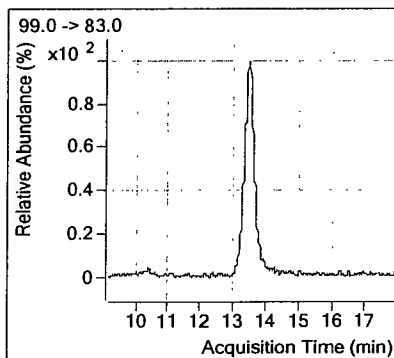
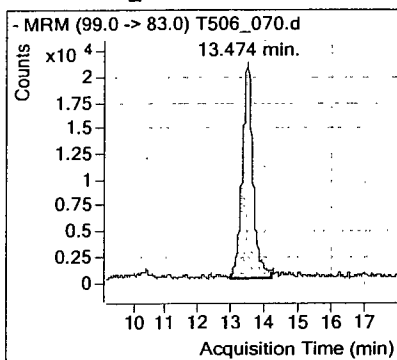
# Quantitative Analysis Sample Report

<b>Batch Data Path</b> D:\MassHunter\Data\150506\QuantResults\150506_A2_MI.batch.bin	
<b>Instrument</b> LCMS QQQ	<b>Operator</b> ba
<b>Data File</b> T506_070.d	<b>Sample Name</b> PER_CCV 0.0004 ug/ml 04/20/15
<b>Sample Type</b> Sample	<b>Acq_Date</b> 05/07/15
<b>Acq Method</b> 6460_ESI_PER_N_NEWER_K'_COLUMN.m	<b>Acq Time</b> 14:51
<b>ClientID</b> NA	<b>Inj Vol</b> 20

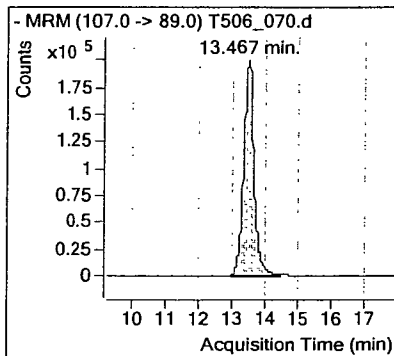
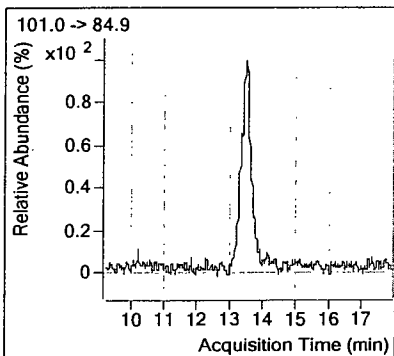
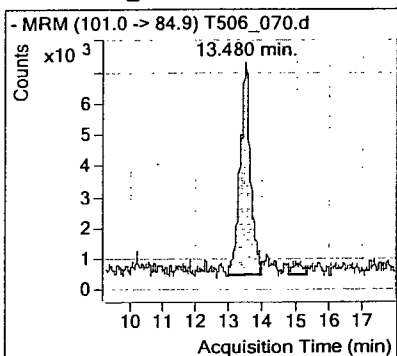


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.474	477613	4367215
Perchlorate_102	PER_IS_108	13.480	150850	4367215

## Perchlorate\_100



## Perchlorate\_102





# CONTINUING CALIBRATION CHECK SUMMARY FORM

Lab Name: APPL Inc.

Detector ID: Agilent 6460 Triple Quad LC/MS DATA FILE ID: T506\_071.d

<div>Date (s) of Analysis From:03/12/15 To:05/07/15 Time (s) of Analysis From:17:52 To:14:14</div>				<div>Date of Analysis: 05/07/15 Time of Analysis: 15:15 Standard Id: PER CCV (Standard) 0.002 ug/ml</div>				
COMPOUND	RT	RT WINDOW FROM TO		AVERAGE RELATIVE RESPONSE FACTOR	RT	CALCULATED RELATIVE RESPONSE FACTOR	QNT Y/N	%D
Perchlorate_83	13.79	13.69	13.89	1.270255	13.69	1.174083	N	7.6
Perchlorate_85	13.70	13.60	13.80	0.391605	13.67	0.357339	N	8.8

FILE ID : TQCK0671.RFB



Data File ID: T506\_071.d

Date Injected : 05/07/15

Time Injected : 15:15

Sample ID : PER\_CCV 0.002 ug/ml 04/20/15

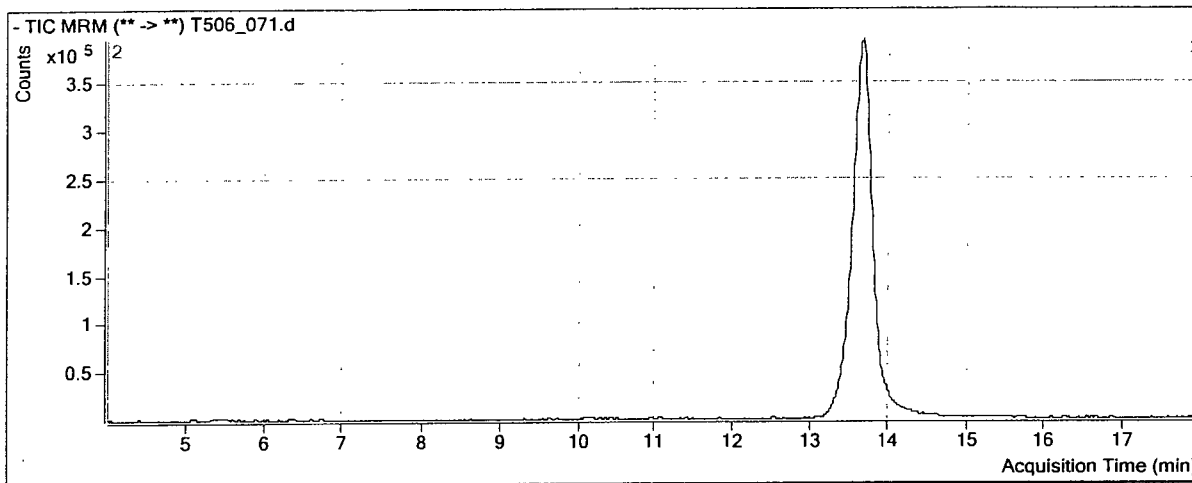
Client ID : NA

Retention Time	Area Count Response	Compound_ID Product Ion
13.671	4602926	PER_IS_89
13.688	2161686	Perchlorate_83
13.674	657922	Perchlorate_85



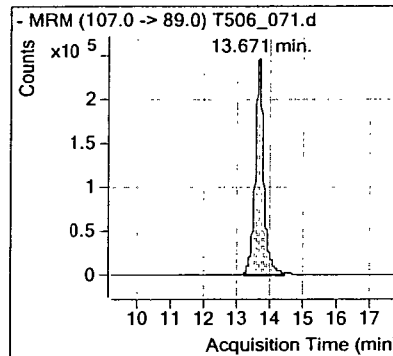
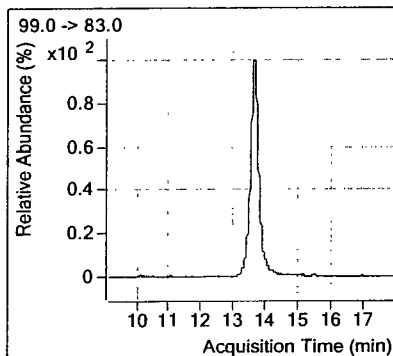
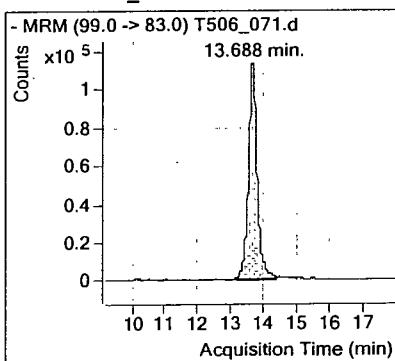
# Quantitative Analysis Sample Report

Batch Data Path	D:\MassHunter\Data\150506\QuantResults\150506_A2_MI.batch.bin		
Instrument	LCMS QQQ	Operator	ba
Data File	T506_071.d	Sample Name	PER_CCV 0.002 ug/ml 04/20/15
Sample Type	Sample	Acq_Date	05/07/15
Acq Method	6460_ESI_PER_N_NEWER_K_COLUMN.m	Acq Time	15:15
ClientID	NA	Inj Vol	20

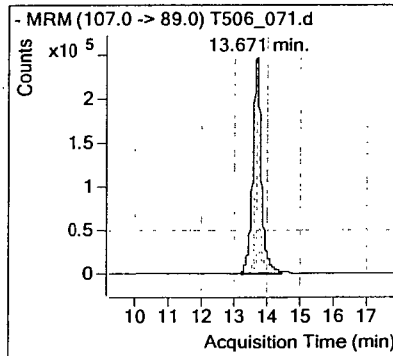
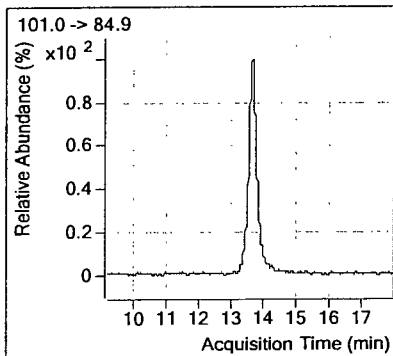
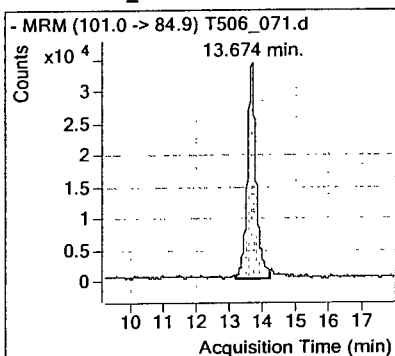


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.688	2161686	4602926
Perchlorate_102	PER_IS_108	13.674	657922	4602926

## Perchlorate\_100



## Perchlorate\_102





**EPA METHOD 6850**  
**Perchlorate**  
**LC/MS**

**Raw Data**



# Method Blank

## Perchlorate

Blank Name/QCG: **150505W-15933 - 196642**  
Batch ID: #6850-150505A

APPL Inc.  
908 North Temperance Avenue  
Clovis, CA 93611

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	PERCHLORATE	0.400 U	0.60	0.400	0.200	ug/L	05/05/15	05/05/15

Quant Method: QTLMFL2  
Run #: T505\_011.D  
Instrument: AGIL\_6460  
Sequence: TQ050515  
Initials: MP

GC SC-Blank-REG MDLs

Printed: 05/06/15 11:59:55 AM



Data File ID: T505\_011.d

Date Injected : 05/05/15

Time Injected : 21:58

Sample ID : 150505WBLKA 1052.6 DF 05/05/15

Client ID : LAB\_CNTL\_W\_BLKKA

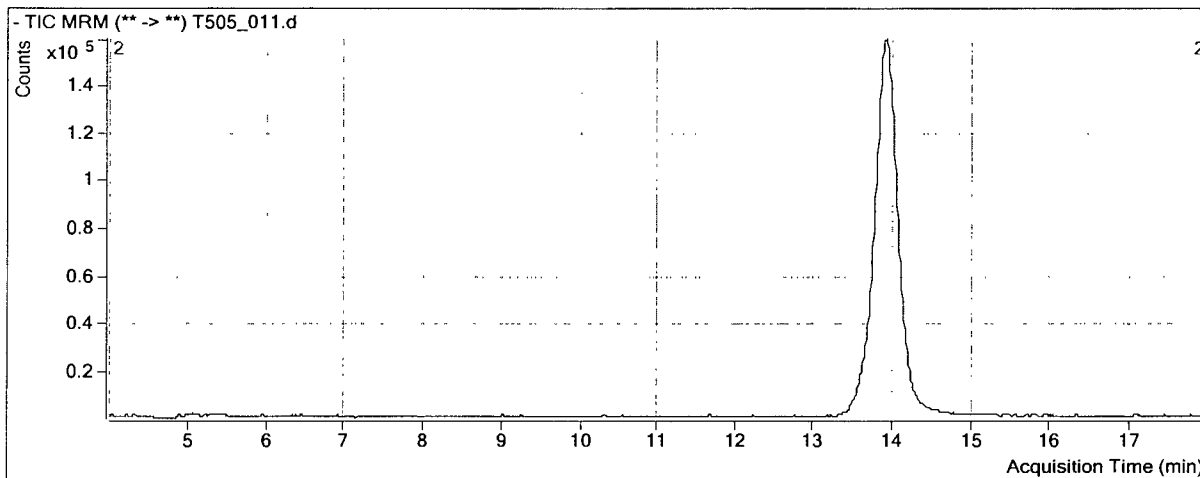
Retention Time	Area Count Response	Compound ID Product Ion			
13.946	3365990	PER_IS_89			
13.606	1401	Perchlorate_83	$(1401 * 0.0050) / (1.27 * 3365990.00) *$	1052.60 =	0.001725 ppb
13.409	6528	Perchlorate_85	$(6528 * 0.0050) / (0.39 * 3365990.00) *$	1052.60 =	0.026065 ppb



# Quantitative Analysis Sample Report

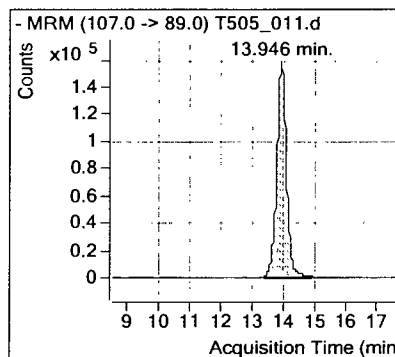
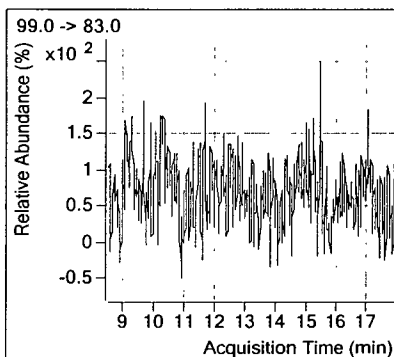
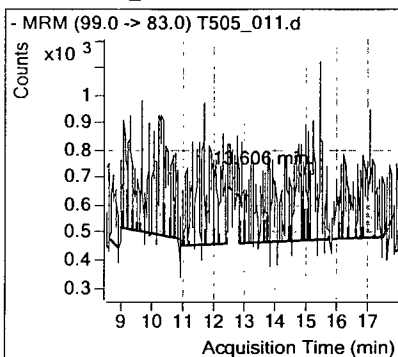
Batch Data Path D:\MassHunter\Data\150505\QuantResults\150505\_A1\_MI.batch.bin

Instrument	LCMS QQQ	Operator	ba
Data File	T505_011.d	Sample Name	150505WBLKA 1052.6 DF 05/05/15
Sample Type	Sample	Acq Date	05/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	Acq Time	21:58
ClientID	LAB_CNTL_W_BLK	Inj Vol	20

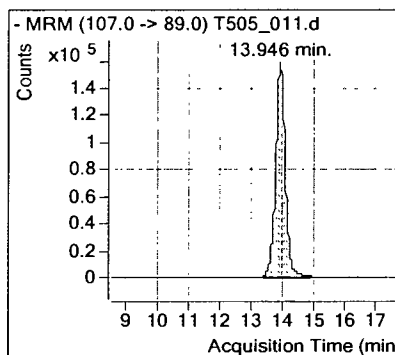
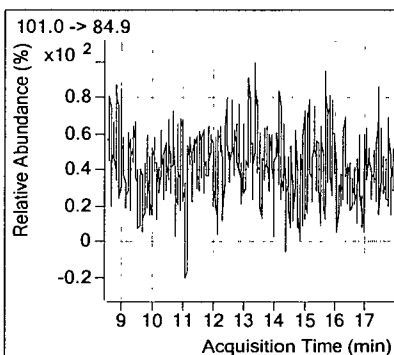
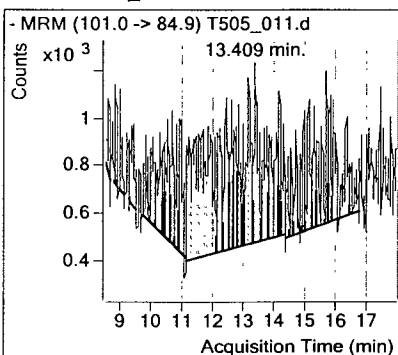


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.606	1401	3365990
Perchlorate_102	PER_IS_108	13.409	6528	3365990

## Perchlorate\_100



## Perchlorate\_102





# Laboratory Control Spike Recovery

## Perchlorate

APPL ID: 150505W-15933 LCS - 196642

Batch ID: #6850-150505A

APPL Inc.

908 North Temperance Avenue

Clovis, CA 93611

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
PERCHLORATE	0.600	0.654	109	80-120

omments: \_\_\_\_\_

<u>Primary</u>	<u>SPK</u>
Quant Method :	QTLMFL2
Extraction Date :	05/05/15
Analysis Date :	05/05/15
Instrument :	AGIL_6460
Run :	T505_009.D
Initials :	MP

Printed: 05/06/15 11:59:58 AM

APPL Standard LCS



Data File ID: T505\_009.d

Date Injected : 05/05/15

Time Injected : 21:21

Sample ID : 150505WA\_LCS-1 1052.6 DF 05/05/15

Client ID : LAB\_CNTL\_W\_SPKA

Retention Time	Area Count Response	Compound ID Product Ion		
13.874	3579840	PER_IS_89		
13.861	565453	Perchlorate_83	$(565453 * 0.0050) / (1.27 * 3579840.00) *$	$1052.60 = 0.654448 \text{ ppb}$
13.857	183072	Perchlorate_85	$(183072 * 0.0050) / (0.39 * 3579840.00) *$	$1052.60 = 0.687295 \text{ ppb}$

$$\frac{(1052.6)(565453)(0.005)}{(270255)(3579840)} = 0.6544$$

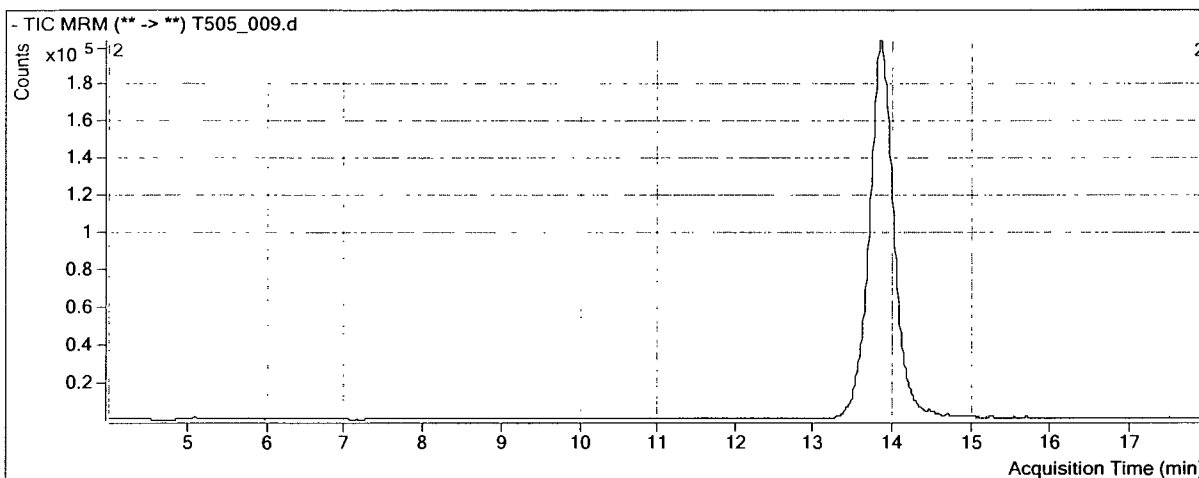
5/28/15  
PA



# Quantitative Analysis Sample Report

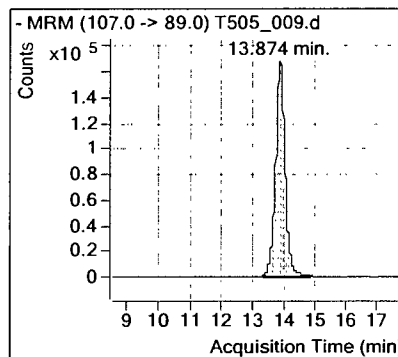
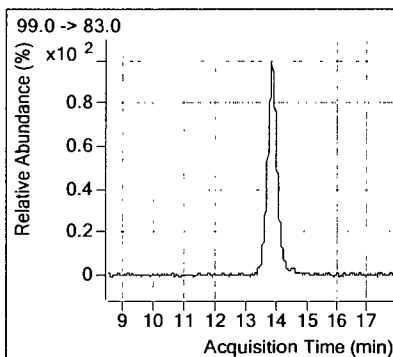
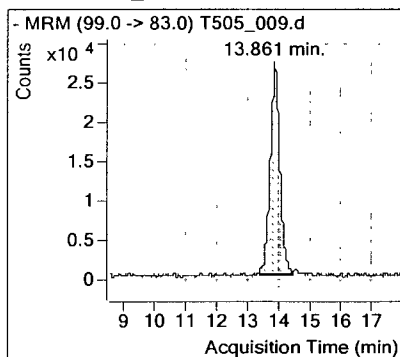
Batch Data Path D:\MassHunter\Data\150505\QuantResults\150505\_A1\_MI.batch.bin

Instrument	LCMS QQQ	Operator	ba
Data File	T505_009.d	Sample Name	150505WA_LCS-1 1052.6 DF 05/05/15
Sample Type	Sample	Acq Date	05/05/15
Acq Method	6460_ESI_PER_N_NEWER_K'_COLUMN.m	Acq Time	21:21
ClientID	LAB_CNTL_W_SPKA	Inj Vol	20

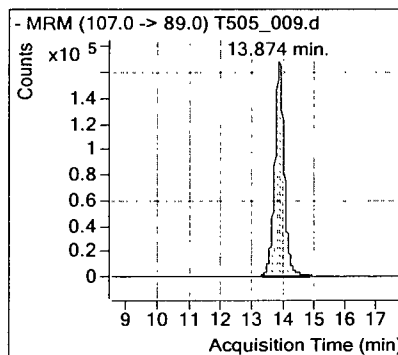
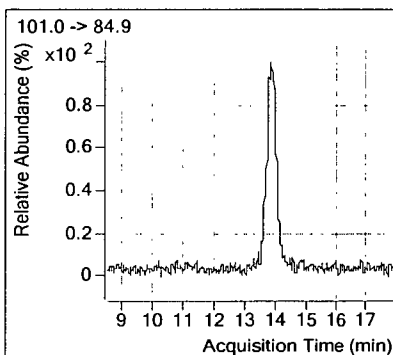
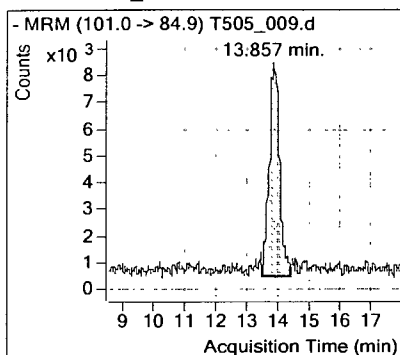


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	13.861	565453	3579840
Perchlorate_102	PER_IS_108	13.857	183072	3579840

## Perchlorate\_100



## Perchlorate\_102





# Interference Check Sample

## Perchlorate EPA 6850 Water

APPL ID: 150505W-15933 ICS-196642  
Batch ID: #6850-150505A

APPL Inc.  
908 N. Temperance Ave.  
Clovis, CA 93711

Compound Name	Spike Level ug/L	Spk Result ug/L	SPK% Recovery	Recovery Limits
Perchlorate	0.600	0.800	133%	70-130

Comments:

Quant Method:	QTLMFL2
Extraction Date:	05/05/15
Analysis Date:	05/05/15
Instrument:	AGIL_6460
Run:	T505_010.D
Initials:	MP



Data File ID: T505\_010.d

Date Injected : 05/05/15

Time Injected : 21:40

Sample ID : 150505W\_ICSA 1052.6 DF 05/05/15

Client ID : LAB\_CNTL\_W\_ICSA

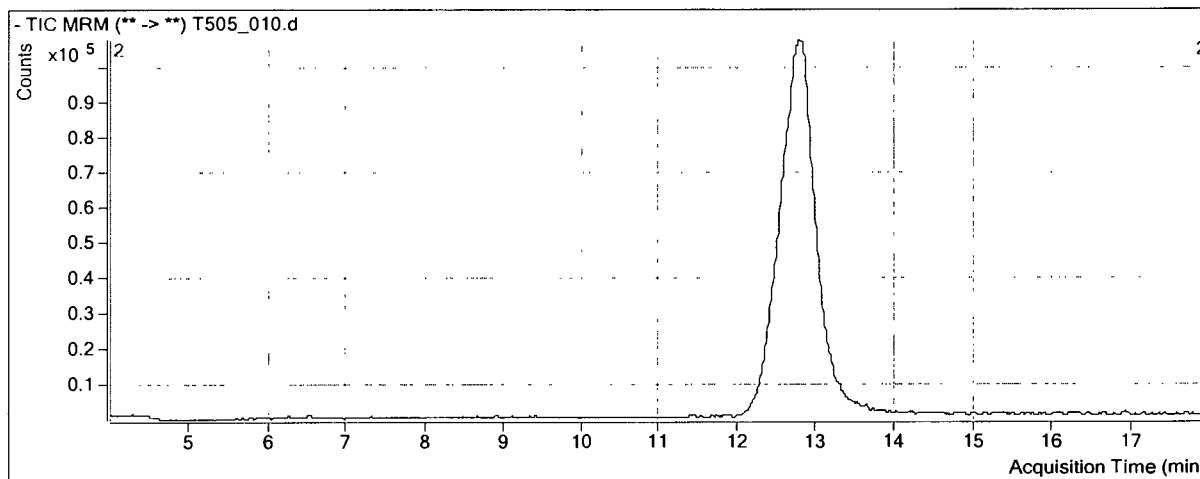
Retention Time	Area Count Response	Compound ID Product Ion			
12.835	2779735	PER_IS_89			
12.801	536896	Perchlorate_83	$(536896 * 0.0050) / (1.27 * 2779735.00) *$	1052.60 =	0.800256 ppb
12.879	192171	Perchlorate_85	$(192171 * 0.0050) / (0.39 * 2779735.00) *$	1052.60 =	0.929115 ppb



# Quantitative Analysis Sample Report

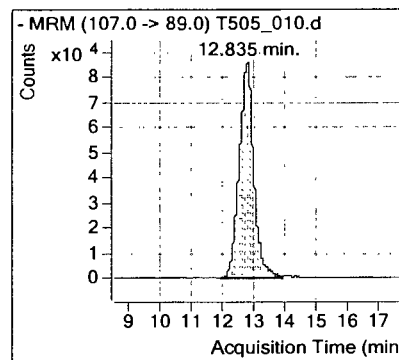
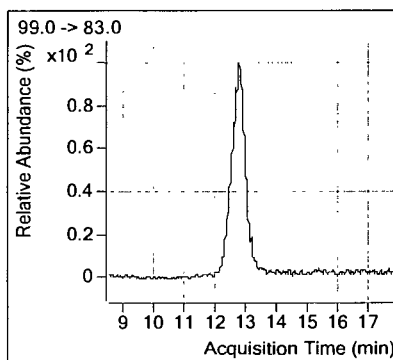
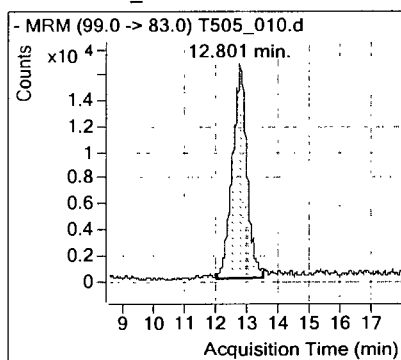
**Batch Data Path** D:\MassHunter\Data\150505\QuantResults\150505\_A1\_MI.batch.bin

<b>Instrument</b>	LCMS QQQ	<b>Operator</b>	ba
<b>Data File</b>	T505_010.d	<b>Sample Name</b>	150505W_ICSA 1052.6 DF 05/05/15
<b>Sample Type</b>	Sample	<b>Acq Date</b>	05/05/15
<b>Acq Method</b>	6460_ESI_PER_N_NEWER_K'_COLUMN.m	<b>Acq Time</b>	21:40
<b>ClientID</b>	LAB_CNTL_W_ICSA	<b>Inj Vol</b>	20

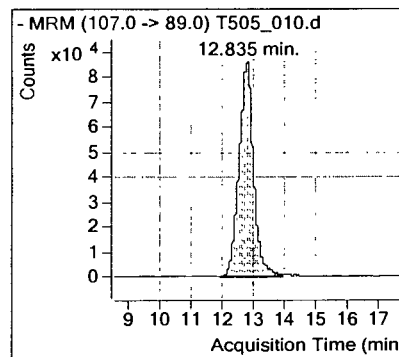
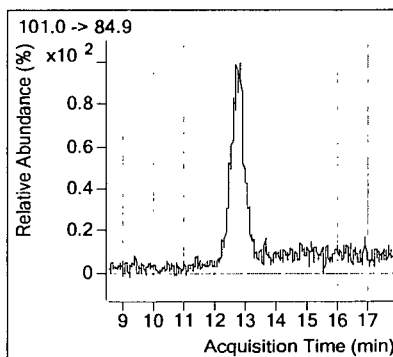
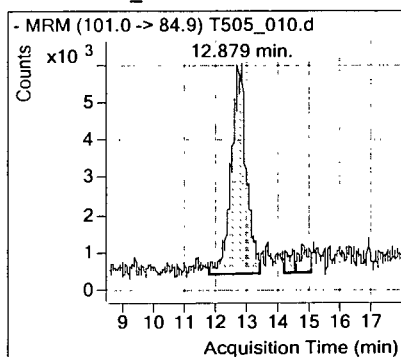


Compound	ISTD	RT	Resp	ISTD Resp
Perchlorate_100	PER_IS_108	12.801	536896	2779735
Perchlorate_102	PER_IS_108	12.879	192171	2779735

## Perchlorate\_100



## Perchlorate\_102





ACN\_H2O\_50:50 1 DF 08/27/14:

Burdick & Jackson Acetonitrile Lot DL308 took 10.000 ml and added to 10.000 ml Laboratory Source DI\_H2O

Note : Above solution was prepared as needed.

PER\_IS\_50:50 0.005 ug/ml 11/11/14:

Took 19.000 ml ACN\_H2O\_50:50 11/11/14 and added 1.000 ml O2SI 18\_O\_4 Perchlorate 100 ug/L lot 1059192-33479

Note: Solution prepared as needed.

PERCHLORATE 0.005 ug/ml 11/11/14:

PERCHLORATE 0.010 ug/ml 08/28/14 took 0.500 ml and added to 0.500 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.

PERCHLORATE 0.002 ug/ml 11/11/14:

PERCHLORATE 0.010 ug/ml 08/27/14 took 0.200 ml and added to 0.800 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.

PERCHLORATE 0.001 ug/ml 11/11/14:

PERCHLORATE 0.010 ug/ml 08/27/14 took 0.100 ml and added to 0.900 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.



<p>PERCHLORATE 0.0004 ug/ml 11/11/14:</p> <p>PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to 0.960 ml PER_IS_50:50 0.005 ug/ml 11/11/14.</p>
<p>PERCHLORATE 0.0002 ug/ml 11/11/14:</p> <p>PERCHLORATE 0.010 ug/ml 08/27/14 took 0.020 ml and added to 0.980 ml PER_IS_50:50 0.005 ug/ml 11/11/14.</p>
<p>PERCHLORATE 0.0001 ug/ml 11/11/14:</p> <p>PERCHLORATE 0.010 ug/ml 08/27/14 took 0.010 ml and added to 0.990 ml PER_IS_50:50 0.005 ug/ml 11/11/14.</p>
<p>PER_CCV_1 0.0004 ug/ml 11/11/14:</p> <p>PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to 0.960 ml PER_IS_50:50 0.005 ug/ml 11/11/14.</p>
<p>PER_CCV_1 0.002 ug/ml 11/11/14:</p> <p>PERCHLORATE 0.010 ug/ml 08/27/14 took 0.200 ml and added to 0.800 ml PER_IS_50:50 0.005 ug/ml 11/11/14.</p>
<p>PER_CCV_2 0.0004 ug/ml 11/11/14:</p> <p>PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to 0.960 ml PER_IS_50:50 0.005 ug/ml 11/11/14.</p>



PER\_CCV\_2 0.002 ug/ml 08/27/14:

PERCHLORATE 0.010 ug/ml 08/27/14 took 0.200 ml and added to  
0.800 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.

PER\_CCV\_3 0.0004 ug/ml 11/11/14:

PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to  
0.960 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.

PER\_CCV\_3 0.002 ug/ml 11/11/14:

PERCHLORATE 0.010 ug/ml 08/28/14 took 0.200 ml and added to  
0.800 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.

PER\_CCV\_4 0.0004 ug/ml 11/11/14:

PERCHLORATE 0.010 ug/ml 08/27/14 took 0.040 ml and added to  
0.960 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.

PER\_CCV\_4 0.002 ug/ml 11/11/14:

PERCHLORATE 0.010 ug/ml 08/27/14 took 0.200 ml and added to  
0.800 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.

PER\_SS 0.0004 ug/ml 11/11/14:

PER\_SS 0.010 ug/ml 08/28/14 took 0.040 ml and added to  
0.960 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.

PER\_SS 0.002 ug/ml 11/11/14:

PER\_SS 0.010 ug/ml 08/28/14 took 0.200 ml and added to  
0.800 ml PER\_IS\_50:50 0.005 ug/ml 11/11/14.



STANDARD	INITIAL CONC	SOURCE DATE	ALLOT VOLUME	FINAL CONC	FINAL CONC	NO. IN LOT#	DATE	INITIALS
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Scav. gph 250 mg/L

Hexachloro-1,3,5-tris-hydroxyethylazine

1010 04-10-15 1.24 5.0 250 ACN/DM394 04-17-15

2,2'-thiodiethanol

1090 04-10-15 1.15

2-(1,3,5-Dithiazin-5-yl)ethanol

1020 04-10-15 1.23

PER-CCV 0.0004 µg/mL 04-20-15:

3h

PER-SS 0.010 µg/mL 08-28-14

04-20-15

took 0.040 mL and added to  
0.910 mL laboratory Source DI-H2O  
that had previously received  
0.050 mL 025I <sup>18</sup>O<sub>4</sub> Perchlorate  
100 µg/L lot 1059192-33479

PER-CCV 0.002 µg/mL 04-20-15:

PER-SS 0.010 µg/mL 08-28-14

took 0.200 mL and added to  
0.750 mL Laboratory Source DI-H2O  
that had previously received  
0.050 mL 025I <sup>18</sup>O<sub>4</sub> Perchlorate  
100 µg/L lot 1059192-33479



040

STANDARD PREP LOG# 105, 40

STANDARD

INITIAL  
CONCSOURCE  
DATE

ALLOUT

FINAL  
VOLUMEFINAL  
CONCNOL. IN V.  
LOT#DATE  
INITIALSPER IS 0.005  $\mu\text{g}/\text{ml}$  04-20-15:

38

02SI  $^{130}\text{I}$  Perchlorate 100  $\mu\text{g}/\text{L}$ 

04-21-15

Lot 1059192-33479 took 0.050 ml

and added to 0.950 ml Laboratory

Source DI-H<sub>2</sub>O.NOTE: Repeated the above process  
four times in order to prepave  
20 2ml vials that werefull. The above was performed  
as dated. 38



STANDARD	INITIAL CONC	SOURCE DATE	ALICUT VOLUME	FINAL CONC	FINAL CONC	ADJ. W. 068	DATE INITIALS
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NOTE: THE FOLLOWING DOCUMENTATION Sh  
WAS PERFORMED AS DATED: 05-19-15

PER.CCV 0.0004  $\mu\text{g}/\text{ml}$  05-07-15: Sh  
PER.SS 0.010  $\mu\text{g}/\text{ml}$  08-28-14 took 05-07-15  
0.040 ml and added to 0.910 ml  
Laboratory Source DI-H<sub>2</sub>O that  
had previously received 0.050 ml  
025I <sup>18</sup>O<sub>4</sub> Perchlorate 100  $\mu\text{g}/\text{L}$   
lot 1074176-35163

PER.CCV 0.002  $\mu\text{g}/\text{ml}$  05-07-15:  
PER.SS 0.010  $\mu\text{g}/\text{ml}$  08-28-14  
took 0.200 ml and added to  
0.750 ml Laboratory Source  
DI-H<sub>2</sub>O that had previously  
received 0.050 ml 025I <sup>18</sup>O<sub>4</sub>  
Perchlorate 100  $\mu\text{g}/\text{L}$  lot  
1074176-35163

PER.IS 0.005  $\mu\text{g}/\text{ml}$  05-07-15:  
025I <sup>18</sup>O<sub>4</sub> Perchlorate 100  $\mu\text{g}/\text{L}$   
lot 1074176-35163 took 0.050  
ml and added to 0.950 ml  
Laboratory Source DI-H<sub>2</sub>O  
NOTE: Repeated the above  
process four times in order  
to prepare 2 - 2 ml vials  
that were full.



STANDARD PREP LOG# 105 PAGE 71

STANDARD	INITIAL CONC	SOURCE DATE	ALLOQUOT VOLUME	FINAL CONC	SOL. EN. LOT#	DATE	INITIALS
Carb. phenol Std Dilutions:							
Carb. phenol 1099	0.091	1.0	100	MECH/55051	06-01-15	HP	
Carb. phenol 100	0.10	1.0	10.0	MECH/55051	6-1-15	HP	
Carb. phenol 10	0.10	1.0	1.0	MECH/55051	6-1-15	HP	
Carb. phenol 100	0.15	0.30	50	MECH/55051	6-1-15	HP	
Carb. phenol 100	0.20	1.0	20	MECH/55051	6-1-15	HP	
Carb. phenol 10	0.15	0.30	5.0	MECH/55051	6-1-15	HP	
Carb. phenol 10	0.20	1.0	2.0	MECH/55051	6-1-15	HP	

NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED ~~06-01-15~~ 06-01-15 JH

PER-IS 0.005  $\mu\text{g}/\text{mL}$  05-06-15: JH

TO 0.450 ML LABORATORY SOURCE 05-06-15

DI-H<sub>2</sub>O 0.050 mL OF 0.251 <sup>18</sup>O<sub>4</sub>

Perchlorate 100  $\mu\text{g}/\text{L}$  lot

1074176-35163 WAS ADDED.

NOTE: THE ABOVE PROCESS WAS PERFORMED ON AN AS NEEDED BASIS IN ORDER TO APPROPRIATELY DILUTE SAMPLES. 06-01-15

AZ15935-W01 10526.3 DF 05-05-15 5/6:

AZ15935-W01 1052.6 DF 05-05-15

TOOK 0.050 ML AND ADDED TO

0.450 ML PER-IS 0.005  $\mu\text{g}/\text{mL}$  05-06-15

AZ15935-W01 105263.2 DF 05-05-15 5/6:

AZ15935-W01 10526.3 DF 05-05-15 5/6

TOOK 0.050 ML AND ADDED TO

0.450 ML PER-IS 0.005  $\mu\text{g}/\text{mL}$  05-06-15



STANDARD	INITIAL CONC	SOURCE DATE	FINAL ALiquot VOLUME	FINAL CONC	AD. IN LOT#	DATE INITIALS
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NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: ~~84~~ 06-01-15 06-01-15

AZ15935.W01 1052631.6 DF 05-05-15 5/6: <sup>84</sup> 05-01-15

AZ15935.W01 105263.2 DF 05-05-15 5/6: <sup>84</sup> 05-01-15

TOOK 0.050 ML AND ADDED TO  
0.450 ML PER-IS 0.005 µg/ml  
05-06-15

AZ15935.W01 10526315.8 DF 05-05-15 5/6:

AZ15935.W01 1052631.6 DF 05-05-15 5/6

TOOK 0.050 ML AND ADDED TO 0.450  
ML PER-IS 0.005 µg/ml 05-06-15.

AZ15995.W01 10526.3 DF 05-06-<sup>15</sup> ~~05~~ 5/6:

AZ15995.W01 1052.6 DF 05-06-15

TOOK 0.050 ML AND ADDED TO  
0.450 ML PER-IS 0.005 µg/ml  
05-06-15

AZ15995.W01 105263.2 DF 05-06-15 5/6

AZ15995.W01 10526.3 DF 05-06-15 5/6

TOOK 0.050 ml and ADDED TO  
0.450 ml PER-IS 0.005 µg/ml  
05-06-15



STANDARD PREP LOG# 105 73

STANDARD	INITIAL CONC	SOURCE DATE	AMOUNT	FINAL VOLUME	FINAL CONC	NO. IN LOT#	DATE INITIALS
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NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: 06-01-15 06-01-15

AZ15995-1001 1052631.6 DF 05-06-15-5/6:  
 AZ15995-W01 105263.2 DF 05-06-15-5/6 05-06-15  
 TOOK 0.050 mL AND ADDED TO 0.450 mL PER-IS 0.005 µg/mL 05-06-15

AZ15996-W01 10526.3 DF 05-06-15-5/6:  
 AZ15996-W01 1052.6 DF 05-06-15  
 TOOK 0.050 mL AND ADDED TO 0.450 mL PER-IS 0.005 µg/mL 05-06-15

AZ15996-1001 105263.2 DF 05-06-15-5/6:  
 AZ15996-W01 10526.3 DF 05-06-15-5/6  
 TOOK 0.050 mL AND ADDED TO 0.450 mL PER-IS 0.005 µg/mL 05-06-15

AZ15996-1001 1052631.6 DF 05-06-15-5/6:  
 AZ15996-W01 105263.2 DF 05-06-15-5/6  
 TOOK 0.050 mL AND ADDED TO 0.450 mL PER-IS 0.005 µg/mL 05-06-15

AZ15997-1001 10526.3 DF 05-06-15-5/6:  
 AZ15997-1001 1052.6 DF 05-06-15  
 TOOK 0.050 mL AND ADDED TO 0.450 mL PER-IS 0.005 µg/mL 05-06-15



074

STANDARD

INITIAL	SOURCE	FINAL	FINAL	DATE	AMOUNT	VOLUME	CONC	LOT#	INITIAL

NOTE: THE FOLLOWING DOCUMENTATION

WAS PERFORMED AS DATED: 06-01-15 06-06-15

AZ15997-W01 105263.2 DF 05-06-15-5/6: \*

AZ15997-W01 10526.3 DF 05-06-15-5/6 05-06-15

TOOK 0.050 mL AND ADDED TO

0.450 mL PER-15 0.005 µg/mL 05-06-15

AZ15997-W01 105263.1.6 DF 05-06-15-5/6

AZ15997-W01 105263.2 DF 05-06-15-5/6

TOOK 0.050 mL AND ADDED TO

0.450 mL PER-15 0.005 µg/mL 05-06-15

AZ15999-W01 10526.3 DF 05-06-15-5/6:

AZ15999-W01 1052.6 DF 05-06-15-5/6

TOOK 0.050 mL AND ADDED TO

0.450 mL PER-15 0.005 µg/mL 05-06-15

AZ15999-W01 105263.2 DF 05-06-15-5/6:

AZ15999-W01 10526.3 DF 05-06-15-5/6

TOOK 0.050 mL AND ADDED TO

0.450 mL PER-15 0.005 µg/mL 05-06-15

AZ15999-W01 105263.1.6 DF 05-06-15-5/6:

AZ15999-W01 105263.2 DF 05-06-15-5/6

TOOK 0.050 mL AND ADDED TO 0.450

mL PER-15 0.005 µg/mL 05-06-15



WMS STANDARD PREP LOG# 105 PAGE# 75

STANDARD	INITIAL CONC	SOURCE DATE	FINAL ALLOUT VOLUME	FINAL CONC	MOL. EN. LOT#	DATE INITIAL
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NOTE: THE FOLLOWING DOCUMENTATION WAS PERFORMED AS DATED: ~~31~~ <sup>06-01-15</sup> ~~05-06-15~~ <sup>06-01-15</sup> ~~06-06-15~~ <sup>06-01-15</sup>

AZ15998-W01 10526.3 DF 05-06-15-5/6: ~~31~~  
 AZ15998-W01 1052.6 DF 05-06-15 05-06-15  
 TOOK 0.050 ml AND ADDED TO 0.450  
 ml PER-IS 0.005 µg/ml 05-06-15

AZ15998-W01 105263.2 DF 05-06-15-5/6:  
 AZ15998-W01 10526.3 DF 05-06-15-5/6  
 TOOK 0.050 ml AND ADDED TO 0.450  
 ml PER-IS 0.005 µg/ml 05-06-15

AZ15998-W01 1052631.6 DF 05-06-15-5/6:  
 AZ15998-W01 105263.2 DF 05-06-15-5/6  
 TOOK 0.050 ml AND ADDED TO 0.450  
 ml PER-IS 0.005 µg/ml 05-06-15

AZ15994-W01 10526.3 DF 05-06-15-5/6:  
 AZ15994-W01 1052.6 DF 05-06-15-5/6:  
 TOOK 0.050 ml AND ADDED TO 0.450  
 ml PER-IS 0.005 µg/ml 05-06-15

AZ15994-W01 105263.2 DF 05-06-15-5/6:  
 AZ15994-W01 10526.3 DF 05-06-15-5/6  
 TOOK 0.050 ml AND ADDED TO  
 0.450 ml PER-IS 0.005 µg/ml  
 05-06-15



## Organic Extraction Worksheet

<b>Method</b>	EPA 6850 HPLC Perchlorate Extraction	<b>Extraction Set</b>	150505A	<b>Extraction Method</b>	HPL6850	<b>Units</b>	mL
Spiked ID 1	Perchlorate Spike Mix 0.1ppm 8-28-14 EXP 7-31-15		Surrogate ID 1				
Spiked ID 2	Mix Anions 25,000ppm 2-10-15 EXP 2-10-16		Surrogate ID 2				
Spiked ID 3			Surrogate ID 3				
Spiked ID 4			Surrogate ID 4				
Spiked ID 5			Surrogate ID 5				
Spiked ID 6			Sufficient Vol for Matrix QC:		NA		
Spiked ID 7			Ext. Start Time:		05/05/15 12:08		
Spiked ID 8			Ext. End Time:		05/05/15 12:13		
			<b>GC Requires Extract By:</b>				
			pH1			Water Bath Temp Criteria	
			pH2				
			pH3				

Spiked By: CFM

Date 05/05/15 12:07:00 PM

Witnessed By: DL

Date 05/05/15 12:07:00 PM

Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1 150505A Blk				NA	NA	5ML	5ML	NA	05/05/15 12:08	
2 150505A LCS-1		0.030	1	NA	NA	5ML	5ML	NA	05/05/15 12:08	
3 150505A ICS		0.030/0.060	1/2	NA	NA	5ML	5ML	NA	05/05/15 12:08	
4 AZ15933	AZ15933W01			NA	NA	5ML	5ML	NA	05/05/15 12:08	76326 - 24 HOURS RUSH
5 AZ15934	AZ15934W01			NA	NA	5ML	5ML	NA	05/05/15 12:08	76326 - 24 HOURS RUSH
6 AZ15935	AZ15935W01			NA	NA	5ML	5ML	NA	05/05/15 12:08	76326 - 24 HOURS RUSH
7 AZ15936	AZ15936W01			NA	NA	5ML	5ML	NA	05/05/15 12:08	76326 - 24 HOURS RUSH
8 AZ15937	AZ15937W01			NA	NA	5ML	5ML	NA	05/05/15 12:08	76326 - 24 HOURS RUSH

P4 5/5/15

<b>Solvent and Lot#</b>	
Millipore Water	5-5-15

<b>Extraction COC Transfer</b>	
<b>Extraction lab employee Initials</b>	CFM
<b>GC analyst's initials</b>	P4
<b>Date</b>	5/5/15
<b>Time</b>	1:00
<b>Refrigerator</b>	NA

<b>Technician's Initials</b>	
<b>Scanned By</b>	CFM
<b>Sample Preparation</b>	CFM
<b>Extraction</b>	CFM
<b>Concentration</b>	-----

<b>Modified</b>	05/05/15 12:11:36 PM
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Reviewed By: P4

Date

P4 5/5/15



# METHOD 6850 INJECTION LOG: 03/12/15, 05/05/15

**DETECTOR ID: Agilent 6460 Triple Quad LC/MS**

SAMPLE INJECTION ID:	DATA FILE ID:	INJECTION DATE/TIME
PERCHLORATE 0.0002 ug/ml 11/11/14	T312_003.d	03/12/15 17:52
PERCHLORATE 0.0004 ug/ml 11/11/14	T312_004.d	03/12/15 18:11
PERCHLORATE 0.001 ug/ml 11/11/14	T312_005.d	03/12/15 18:29
PERCHLORATE 0.002 ug/ml 11/11/14	T312_006.d	03/12/15 18:48
PERCHLORATE 0.005 ug/ml 11/11/14	T312_007.d	03/12/15 19:07
PERCHLORATE 0.010 ug/ml 08/27/14	T312_008.d	03/12/15 19:25
PER_SS 0.0004 ug/ml 11/11/14	T312_010.d	03/12/15 20:02
PER_SS 0.002 ug/ml 11/11/14	T312_011.d	03/12/15 20:21
PER_CCV_1 0.0004 ug/ml 11/11/14	T312_013.d	03/12/15 20:58
PER_CCV_1 0.002 ug/ml 11/11/14	T312_014.d	03/12/15 21:17
PER_CCV 0.0004 ug/ml 04/20/15	T505_006.d	05/05/15 20:25
PER_CCV 0.002 ug/ml 04/20/15	T505_007.d	05/05/15 20:44
150505WA_LCS-1 1052.6 DF 05/05/15	T505_009.d	05/05/15 21:21
150505W_ICSA 1052.6 DF 05/05/15	T505_010.d	05/05/15 21:40
150505WBLKA 1052.6 DF 05/05/15	T505_011.d	05/05/15 21:58
AZ15933_W01 1052.6 DF 05/05/15	T505_012.d	05/05/15 22:17
AZ15934_W01 1052.6 DF 05/05/15	T505_013.d	05/05/15 22:36
AZ15936_W01 1052.6 DF 05/05/15	T505_015.d	05/05/15 23:13
AZ15937_W01 1052.6 DF 05/05/15	T505_016.d	05/05/15 23:31
PER_CCV 0.0004 ug/ml 04/20/15	T505_018.d	05/06/15 0:09
PER_CCV 0.002 ug/ml 04/20/15	T505_019.d	05/06/15 0:27
PER_CCV 0.0004 ug/ml 04/20/15	T506_002.d	05/06/15 16:29
PER_CCV 0.002 ug/ml 04/20/15	T506_003.d	05/06/15 16:48
PER_CCV 0.0004 ug/ml 04/20/15	T506_057.d	05/07/15 10:41
PER_CCV 0.002 ug/ml 04/20/15	T506_058.d	05/07/15 11:00
AZ15935_W01 105263.2 DF 05/05/15_5/6	T506_063.d	05/07/15 12:33
PER_CCV 0.0004 ug/ml 04/20/15	T506_070.d	05/07/15 14:51
PER_CCV 0.002 ug/ml 04/20/15	T506_071.d	05/07/15 15:15